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# THROMBOSIS OF THE CAROTID ARTERY

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Perusal of the literature shows comparatively few English and American references to the subject of thrombosis of the carotid artery. Most of these articles deal with thrombosis of the internal carotid artery.

In view of this and because no reference at all was found in the South African literature of the past five years it was thought that a case of hemiplegia due to thrombosis of the common carotid artery was of sufficient interest to warrant publication.

## CASE HISTORY

The patient was a young Indian male aged 27 years who was admitted to hospital with a story of hemiplegia of rapid onset eight months previously. He stated that eight months ago he woke up suddenly one night, felt giddy and then lost consciousness. He remained unconscious for six days and on regaining consciousness found that the left side of his body was completely paralysed. There were no subjective visual disturbances. As far as could be determined he had been quite well previously and the hemiplegia was the first complaint referable to the central nervous system which he had experienced. No history of trauma was obtained. Since the time of this incident he has been quite well generally but is giddy at intervals. He does not vomit and there are no headaches, but he feels pins-and-needles in his left arm and leg and down the left side of his trunk.

He has phases of mild mental confusion which he can recall during the periods when he is mentally clear.

His paralysis had been improving slowly, and at the time of his admission he could walk if assisted but he was still unable to use his left arm.

The relevant findings on examination of the central nervous system were as follows: The intellect was poor, and there were periods of fluctuation in understanding. There was a marked loss of motor power of left hand, the weakness being less marked in left arm and shoulder. Some decrease in power in left leg and thigh was present. Wasting was especially noticeable in the left hand, chest wall and thigh. Wrist drop was present on the left.

The tone was increased in the left arm. The gait was hemiplegic. The tendon reflexes were increased on the left side and the abdominal and cremasteric reflexes were absent on the left side; an extensor plantar response was present on the left. There was paresis of the seventh, ninth, tenth, eleventh and twelfth cranial nerves on the left side.

Examination of the eyes showed that the pupils were equal in size, reacting briskly to light and accommodation. The optic fundi were normal, and there was no paresis of the ocular muscles.

Sensory disturbances were difficult to evaluate. Paraesthesiae on the left side has been mentioned previously. There was variable and indefinite loss of appreciation of light touch and painful stimuli on the left side.

The cerebrospinal fluid was clear and colourless; its pressure was 150 mm. of cerebrospinal fluid, and no block was present. The fluid was chemically and cytologically normal. The Kolmer Cardiolipin Wassermann reaction was negative.

The heart was normal on clinical, roentgenologic and electrocardiographic examination. The Blood Pressure in the right arm was 120/75 mm. Hg, and in the left arm 110/70 mm. Hg. All the peripheral pulses, including the temporal, were palpable and equal.

The left pectoral region appeared flattened as compared to the right side of the chest. The lungs were normal, clinically and on X-ray examination.

The haemoglobin content of the blood was 22 gm. per 100 ml. of blood, and the red cells numbered 6,000,000 per c.mm. The Wassermann (modified Ide) test was negative. Examination of the marrow showed no gross pathologic changes in either the appearance of the cells or in their numerical distribution.

On X-ray of the Skull no abnormality was observed. The urine was normal.

An assessment of the pathology was attempted at this stage and in view of the history, clinical and laboratory findings one considered conditions rapid in onset with maximum immediate effects, yet not fatal and permitting slow but progressive recovery.

The two outstanding possibilities were cerebral thrombosis and subarachnoid haemorrhage possibly from a berry aneurysm of the circle of Willis. The high red cell count was borne in mind but a diagnosis of early polycythaemia with secondary intracerebral thrombosis could not be entertained in view of the absence of all other signs of polycythaemia.

The rapidity of onset favoured a haemorrhage from a cerebral aneurysm and an attempt to demonstrate such a lesion by means of cerebral angiography was made. Percutaneous insertion of the needle into the right common carotid artery was unsuccessful, the point of the needle being felt to slip off the vessel repeatedly. The skin of the neck was then incised and the common carotid artery exposed.

It was found that this vessel was completely thrombosed and no blood could be aspirated from it after insertion of the needle under direct vision. The thrombosed portion extended from the bifurcation downwards for a distance of about two inches. Both the internal and external carotid vessels were patent and there were obvious anastomotic vessels just above the level of the bifurcation, amongst which the superior thyroid artery was particularly prominent.

No attempt was made to inject dye on the left for fear of possible thrombosis on that side.

## DISCUSSION

The occurrence of thrombosis in the carotid arteries is sufficiently rare to escape consideration in the differential diagnosis of hemiplegia, even when occurring in young adults. Most of the reports in the literature deal with thrombosis in the internal carotid artery and the cases quoted can be divided into two main groups. The first, and larger, comprised of cases giving a history of prodromal neurological complaints such as transient headaches on the side of the lesion, transient blindness and speech disturbances, and the second group containing the so-called 'explosive' cases in which a maximum lesion occurs without warning and with no previous history of neurological symptoms, and where the condition simulates the usual cerebrovascular accident.

*Aetiology.* The thrombosis in the common carotid artery of this patient was considered to be the cause of the neurological lesion, but the pathological process responsible for the vascular obstruction was not determined. Unfortunately a section of the artery was not removed for histological examination.

Andrell,[1] reviewing previously reported cases, quotes pathological reports mainly from Sorgo [2, 3] and Hultquist and his conclusions are quoted more briefly by Wolfe.[4]

1. Local disease such as inflammation, trauma [5] and tumour formation must be excluded: these were not present in the case described above.

2. Embolism causing vascular obstruction must be borne in mind but is unlikely for the present patient had no evidence of cardiac or pulmonary disease.

3. Lesions of the vessel wall. (a) When thromboangiitis obliterans involves the cerebral arteries, the lesion in the carotid is usually sclerotic, although Antoni (quoted by Andrell) does describe a case in which changes in the wall of the internal carotid artery were indicative of thromboangiitis obliterans. In view of the progressive improvement in this patient the diagnosis of cerebral thromboangiitis is not likely.

(b) Arteriosclerosis is considered the most likely aetiological factor. Where it is associated with sudden but not necessarily permanent drop in the blood pressure, e.g. where the carotid sinuses are specially sensitive, slowing of the blood will favour thrombosis at the site of roughening of the intima of the abnormal carotid vessels.

(c) Obliterating syphilitic endarteritis has been responsible in at least one reported case.

4. Andrell quotes two cases of Schuller-Christian disease in which carotid thrombosis occurred.

5. Downward extension of the thrombosis in a berry aneurysm following a subarachnoid haemorrhage occurred in a case quoted by Wolfe. The lumen of the internal carotid artery in that case was only partially occluded.

6. The high red cell count with corresponding increase in the viscosity of the blood may have been a prominent contributory factory in this patient.

*Age, Sex and Vessel Involved.* The ages of the patients with thrombosis of the carotid vessels have ranged from the first to the eighth decade (Webster *et al.*[6]); and Andrell[1] reports ages between the third and seventh decades. The maximum incidence lies between the ages of 30 and 60 years.

The syndrome occurs more frequently in males with a predominance ratio of about 3.5 to 1.0, and all authors agree on, and in fact stress, the marked predilection of the thrombosis for the left side. Galdston *et al.*[7] report a similar case in which the lesion was on the right, and in this instance there was a vascular anomaly in that the right common carotid artery arose directly from the aortic arch. There was no anatomical abnormality of the carotid vessels as far as could be determined in the case of the present patient.

*Clinical Findings.* These are listed by most authors but Andrell in addition put forward the hypothesis of spasm of the cerebral arteries produced by reflexes initiated in the damaged carotid vessel. These vasoconstrictive spasms are held by him to be responsible for the transient neurological symptoms which are so frequently encountered in this syndrome, and which may be present for several years prior to the onset of hemiplegia. In addition these reflex spasms might eventually help to precipitate the final coarse neurological lesions, for instance in those cases where occlusion of the carotid is moderate or incomplete, and also where lesions in the contralateral hemisphere were detected clinically or at autopsy.

The extent and type of the neurological lesion depends on several factors.

1. Side of the lesion. Right-sided lesions do not give rise to language disturbances produced by involvement of the speech 'centre' situated in the left cortex (in right-handed persons). One exception is quoted by Andrell.

2. Age. This is not a constant factor. Clinical and experimental ligation of the internal (or common) carotid artery produces cerebral damage in only 10 to 30% of cases, but there is no definite and absolute correlation between the age of the subject and the results of the carotid occlusion.

3. The efficiency and degree of the anastomotic circulation will have a direct effect on the extent of the lesion. The speed of the development of the obstruction is therefore of importance. Such lesions as do occur are in the main localized in the area of distribution of the middle cerebral artery, and consist, apart from the hemiplegia, of a degree of aphasia, variable loss of sensation on the hemiplegic side and a field defect in the contralateral eye.

The degree of aphasia depends largely on the amount of overlap of branches of the unaffected posterior cerebral artery into the cortical field supplied mainly by the middle cerebral artery.[8]

Neurological lesions in the homolateral eye may be produced by two mechanisms. The first is through occlusion of the ophthalmic artery due to extension of the original pathology, either ascending thrombosis or embolism, usually resulting in optic nerve atrophy and permanent blindness; and the second mechanism is through a temporarily insufficient blood supply and/or arterial spasm, usually producing transient homolateral monocular visual impairment. Other lesions referable to the eyes have been reported; paresis of the internal rectus muscle occurs, and not infrequently anisocoria with miosis on the side of the thrombosed carotid artery.

Paresis of vertical movement of the homolateral eye is mentioned by Andrell.

In brief then, the clinical findings (apart from those neurological findings which are transient) are a hemiplegia of the contralateral side, more marked in the face and arm than in the leg because the lesion is localized in the cortex rather than in the internal capsule, lesions of the optic nerve of the homolateral eye and optic radiation of the contralateral eye and lesions of the cranial nerves, especially the distal four.

Andrell points out that the psychical functions of such patients are seldom quite normal. He mentions indifference towards their illness, euphoria, confusion and emotional instability.

*Diagnosis.* This is not easy and is infrequently considered owing to the rarity of the condition. The transient neurological symptoms may be a pointer especially where followed, perhaps years later, by the coarse neurological features. Careful palpation in the neck and temporal regions may reveal absence of arterial pulsations on the affected side, where the external carotid artery is involved and this would strongly suggest the diagnosis. Most authors indicate that final proof depends on arteriography and exposure of the vessels.

*Treatment.* This depends on the phase of the disease in which the patient presents himself. If sufficiently early, when transient symptoms are present and lesions of the carotid wall are suspected or demonstrated, ligation and excision of the damaged segment may help. This entails the risk of producing cerebral damage by curtailing the blood supply on that side. Superior cervical ganglionectomy would interrupt the reflex pathway. Medical treatment, employing drugs counteracting vasospasm or sympatheticolytic in nature, may be of value. The obvious drawback is that lowering of the blood pressure favours thrombosis. Paton, quoted by Kay and Smith,[9] gave experimental evidence that the hexamethonium compounds are most effective in their ganglionic blocking action where stimuli are abnormally frequent. No reports of their use in carotid artery thrombosis have been found.

Once there is evidence of thrombosis, especially if it is still incomplete, the anticoagulants might be of value in reducing the incidence of embolism and extension of the thrombotic process, although Ameli and Ashby[10] warn against their use for fear of cerebral haemorrhage.

*Prognosis.* Where the underlying cause of the thrombosis is not progressive or is amenable to treatment, there will tend to be a progressive improvement which may be quite marked (as in the present patient) or comparatively minimal. Where the changes are irreversable at the onset of the disease or where the underlying pathology is progressive in nature, e.g. thromboangiitis obliterans, the prognosis is correspondingly bad.

SUMMARY

A case of hemiplegia due to the thrombosis of the right common carotid artery is presented. This would seem to be only the second case reported in the literature as far as could be determined. The underlying aetiology was undetermined and the patient belonged to the group presenting with 'explosive' symptoms.

The absence of fundal changes and visual disturbances is noted.

The pathogenesis and the clinical features of thrombosis of the carotid vessels are discussed and the possibility that reflex spasm plays a part in the premonitory symptoms and in the productions of the full syndrome is stressed.

An unusually high red cell count as a possible factor in the pathogenesis of the thrombosis in this patient is commented upon.

The several points in the diagnosis are enumerated and the importance of the palpation of the arterial peripheral pulses in the carotid and temporal regions is stressed.

The various aspects of treatment depending on the particular phase of the pathology are considered.

I would like to thank Dr. C. Duthie for permission to quote the case history. Thanks are also due to Dr. E. Meltzer for his constant encouragement and advice, and to Dr. S. M. Lewis for completing most of the investigations.

REFERENCES

1. Andrell, P. O. (1943): Acta Med. Scandinav., **114,** 336.
2. Sorgo (1939): Ztsch. f. Neuro. Ps., **167,** 581.
3. Sorgo (1939): Zbl. Neurochir., **4,** 161.
4. Wolfe, H. R. I. (1948): Lancet, **2,** 967.
5. Caldwell, H. W. and Madden, F. C. (1948): Ann. Int. Med., **28,** 1132.
6. Webster, J. E. *et al.* (1950): Arch. Neurol. Psychiat., **63,** 1942.
7. Galdston *et al.* (1941): Arch. Int. Med., **67,** 1162.
8. King, A. B. and Langworthy, O. R. (1941): Arch. Neurol. Psychiat., **46,** 835.
9. Kay, A. W. and Smith, A. N. (1950): Brit. Med. J., **2,** 807.
10. Ameli, N. O. and Ashby, D. W. (1949): Lancet, **2,** 1078.

## ABSTRACT

V. de Lavergne, J. Watrin and J. Cauchois. *Jennerian Vaccination and Wassermann's Reaction.* Progrès médical (1949): **77,** p. 113.

De Lavergne and co-workers subjected the serum of 9,842 Italian labourers who were employed in French plants and lived in a lodging centre, to *Wassermann's* test for syphilis. The reactions of 144 serum specimens were found to be positive (1.4%).

The men were vaccinated against smallpox, and *Wassermann's* test was repeated within 28 days after vaccination. Nineteen (17%) out of 108 serum specimens that were negative before vaccination now showed positive reactions: 14 were weakly positive and five strongly positive. Of the 14 weakly positive ones, who had become positive as a result of the *Jennerian* vaccination, 11 became negative spontaneously within 115 days, one in 117 days, one in 129 days and one in 165 days after vaccination.

The authors report the case of a girl, aged 20, who was about to be married. In accordance with the law she was vaccinated against smallpox and had a *Wassermann* test for syphilis on the 25th day after vaccination. The reaction was positive. The test was repeated ten days later by the same laboratory and by a second laboratory; both reactions were negative. The possible unfavourable consequences for the physician and for the laboratory in a case like this are evident. In order to prevent individuals being classified and treated erroneously as syphilitics, the *Wassermann* test should not be performed in individuals who have been vaccinated against smallpox eight to 150 days previously.

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## EDITORIAL

### DAGGA

Dagga is the common South African term which describes the coarse leaf-powder (containing seeds) made from the flowering top of the Indian hemp plant, botanically known as Cannabis. The hemp plant originated in Central Europe, but it now grows in most parts of the world, wild or in cultivation, as an annual. Any part of it, when rubbed between the fingers, gives off a characteristic minty odour, the flowering tops being slightly sticky to the touch. The hemp seed (*chènevis*) is used in the manufacture of varnish and paint. It was formerly used for soap-making. In hot, dry countries (the plains of India) the plant is cultivated to produce textile fibres.[1]

The inebriating properties of hemp have long been known. Herodotus [2] wrote that the plant was cultivated in Scythia and Thrace, and the inhabitants not only made clothes from it, but also intoxicated themselves by roasting the seeds on hot stones and breathing the vapours. To-day an imposing number of narcotic preparations is made from the hemp plant for consumption by addicts all over the world. Drugs may be prepared for smoking (chira, hashish, marihuana, dagga) or for drinking (assis, chats-raki). In Eastern countries much ingenuity is devoted to the making of sweet-meats which contain the Cannabis resin in mixtures of almond, chocolate or honey; these substances have a reputation as aphrodisiacs in Arab medicine.

Drugs which produce addiction generally have effects regarded as pleasurable. That hemp has these properties is evident from the serious problem created by its control and use in the United States. The recent imprisonment of a group of film actors focussed fresh public attention on Cannabis addiction and showed that it is not confined to the lowest economic groups of the population. The impression is that in South Africa dagga is used chiefly by Coloured persons and a small number of the more degenerate Europeans. There is a strong popular disapproval directed against it.

At the Grahamstown Medical Congress, in 1935, a resolution was passed asking the Minister of the Interior to arrange for an investigation of the likelihood that dagga smoking could produce psychotic states and intellectual deterioration. As a result a study of dagga smoking [3] was made by the staff of the Pretoria Mental Hospital. The

1. R. J. Bouquet (1950): U.N. Bull. Narcot., **2**, 14.
2. Herodotus, *Historiae*, IV, 75.
3. Medical Staff, Pretoria Mental Hospital (1938): This *Journal*, **12**, 85.

## VAN DIE REDAKSIE

### DAGGA

Dagga is die algemeen bekende Suid-Afrikaanse term wat die growwe (saadbevattende) blaarpoeier beskryf wat van die blomtoppe van die Indiese hennep, in die plantkunde bekend as *Cannabis*, gemaak word. Die hennepplant het sy oorsprong in Sentraal-Europa maar dit groei nou wild of gekweek in die meeste dele van die wêreld as 'n jaarplant. Wanneer enige deel daarvan tussen die vingers gevryf word, het dit 'n kenmerkende kruisement-agtige geur en die blomtoppe voel effens klewerig. Die hennepsaad (*chènevis*) word gebruik by die vervaardiging van vernis en verf. Dit is voorheen vir die maak van seep gebruik. In warm, droë lande (die vlaktes van Indië) word die plant vir tekstielvesels gekweek.[1]

Die bedwelmende eienskappe van hennep is reeds lank bekend. Herodotus [2] het geskryf dat die plant in Skithië en Thracië gekweek is en die bewoners het nie slegs klere daarvan gemaak nie maar het hulle ook bedwelm deur die saad op warm klippe te braai en die dampe in te asem. Op die oomblik word 'n indrukwekkende aantal narkotiese preparate van die hennepplant vir verbruik deur verslaafdes oor die wêreld gemaak. Verdowingsmiddels om te rook kan gemaak word (chira, hasjish, marijuana, dagga) of om te drink (assis, sjats-raki). In die lande van die Ooste word met veel vernuf lekkers gemaak wat die Cannabis-harpuis in mengsels van amandel, sjokolade of heuning bevat; in Arabiese geneeskunde word hierdie stowwe beskou as geslagsprikkelmiddels.

Verdowingsmiddels wat verslaafdheid veroorsaak, het gewoonlik 'n uitwerking wat as aangenaam beskou word. Dat hennep hierdie eienskap besit, blyk duidelik uit die ernstige probleem wat deur die beheer en gebruik daarvan in die Verenigde State van Amerika geskep is. Die onlangse gevangesetting van 'n groep filmakteurs het opnuut die aandag van die publiek op verslaafdheid aan *Cannabis* gevestig en het getoon dat dit nie tot die laagste ekonomiese groepe van die bevolking beperk is nie. Die indruk bestaan dat dagga in Suid-Afrika hoofsaaklik deur Kleurlinge en 'n klein aantal ontaarde blankes gebruik word. Sterk afkeur van die publiek is daarteen gemik.

Op die Grahamstadse Mediese Kongres van 1935 is 'n besluit aangeneem waarin die Minister van Binnelandse Sake gevra is om 'n ondersoek te reël na die moontlikheid dat die rook van dagga psigotiese toestande en verstandelike agteruitgang kan veroorsaak. As gevolg daarvan is 'n ondersoek na die rook van dagga [3] deur die personeel van die hospitaal vir sielsiekes te Pretoria gedoen. Die

1. Bouquet, R. J. (1950): U.N. Bull. Narcot. **2**, 14.
2. Herodotus, *Historiae*, IV, 75.
3. Geneeskundige Personeel, Pretoriase Gestig vir Sielsiekes (1938): Hierdie *Tydskrif*, **12**, 85.

conclusion was that dagga produces effects very similar to those of alcohol. The investigators were not prepared to state that dagga produces moral and mental deterioration; they suggested that moral deterioration precedes the addiction and predisposes to the use of dagga.

In the absence of more extensive clinical and sociological investigations, it is difficult to be sure how large a social problem dagga has created in South Africa. (It was not long ago that some farmers doled out a pipeful of dagga to their labourers at the end of each day, in much the same way as many farm-workers are now given a tot of wine.) Its sale or use is prohibited by law, and the vigilance of the police is strict; a short time ago a senior police official was fined because of his connexion with the dagga trade.[4] It is not known how much more serious the effects of dagga are than those of alcohol. Dagga produces in the smoker drowsiness, euphoria and occasional psychotic episodes, but alcohol is guilty of even graver actions. It is not certain to what extent dagga contributes to the commission of crime in this country. Alcohol does so in undeniable measure.

The hemp plant, regardless of statutory prohibition, continues to be cultivated secretly, sometimes hidden in mealie lands or on obscure islands in rivers. The runners, who carry the finger-shaped packets for sale, have to rack their wits afresh now that chimneys and hollowed table legs are suspect, and the significance of a penny nailed to the threshold has become known. The furtive smoker is himself in constant danger of being betrayed to the police by the distinctive odour of his cigarette.

Mayor la Guardia was concerned by rumours that marihuana was smoked by large sections of the population of New York, and even by school children. In 1938, on the recommendation of the New York Academy of Medicine, he appointed a committee to study the effects of marihuana. The Committee's report [5] is one of the most authoritative investigations of the problem.

It is probable that the effects of dagga closely resemble those of marihuana. No direct relationship was found between the commission of crimes of violence in New York and marihuana. It was smoked for the sake of conviviality and to obtain a temporary feeling of adequacy. Smoking stopped spontaneously when the desired effect was attained; unlike the alcoholic, the marihuana addict has no desire for more of the drug as soon as he feels 'high'. Smoking could also be stopped abruptly without mental or physical distress comparable to the deprivation symptoms in morphine addicts. The effects of Cannabis appear immediately and pass off in from one to three hours. Although some subjects become restless and talkative, most experienced a sense of well-being, relaxation and unawareness of the surroundings, followed by drowsiness. There was difficulty in focussing and sustaining mental attention.

4. The *Cape Times*, 9 September 1950.
5. Mayor's Committee on Marihuana (1944): *The Marihuana Problem in the City of New York*. Pennsylvania: Jaques Cattell Press.

gevolgtrekking waartoe gekom is, was dat dagga gevolge het wat baie met dié van alkohol ooreenkom. Die ondersoekers was nie bereid om te sê dat dagga morele en verstandelike agteruitgang veroorsaak nie; hulle het te kenne gegee dat morele agteruitgang verslaafdheid voorafgaan en aanleiding tot die gebruik van dagga gee.

By afwesigheid van uitgebreider kliniese en sosiologiese ondersoeke is dit moeilik om seker te wees van die omvang van die maatskaplike probleem wat dagga in Suid-Afrika geskep het. (Dit is nie so lank gelede nie dat boere 'n pypvol dagga aan die end van elke dag aan hulle arbeiders uitgedeel het, soos baie arbeiders vandag op die plase 'n dop wyn kry.) Die verkoop of gebruik daarvan is deur die wet verbied en die waaksaamheid van die polisie is streng; kort gelede is 'n senior polisie-amptenaar beboet weens sy verband met die daggahandel.[4] Dit is nie bekend hoeveel ernstiger die gevolge van dagga in vergelyking met dié van alkohol is nie. Dagga veroorsaak lomerigheid, 'n welsynsgevoel en af en toe psigotiese episodes by die roker, maar selfs ernstiger inwerkinge kan aan alkohol toegeskryf word. Dit is nie duidelik in watter mate dagga tot misdaad in hierdie land bydra nie. Alkohol doen dit wel in onteenseglike mate.

Die hennepplant word ten spyte van die verbod deur die wet nog steeds in die geheim gekweek, soms versteek in mielielande of op afgesonderde eilande in riviere. Die verspreiders wat die vingervormige pakkies te koop rondra moet hulle verstand opnuut inspan noudat skoorstene en uitgeholde tafelpote onder verdenking staan en die betekenis van 'n pennie wat op 'n drempel gespyker is, bekend geword het. Die versigtige roker loop self altyd die gevaar dat die kenmerkende geur van sy sigaret hom aan die polisie verraai.

Burgemeester la Guardia was besorg oor gerugte dat marijuana deur groot dele van die bevolking van New York en selfs deur skoolkinders gerook word. In 1938 het hy op aanbeveling van die *New York Academy of Medicine* 'n komitee aangestel om die gevolge van marijuana te bestudeer. Die Komitee se verslag [5] is een van die mees gesaghebbende ondersoeke van die probleem.

Dit is waarskynlik dat die gevolge van dagga 'n noue ooreenkoms met dié van marijuana vertoon. Daar is geen regstreekse verband tussen die pleeg van geweldmisdade en marijuana gevind nie. Dit is ter wille van die gevoel van vrolikheid gerook en om 'n tydelike gevoel van voldoening te kry. Die rook daarvan het spontaan opgehou wanneer die begeerde uitwerking verkry is; anders as in die geval van alkohol, het die verslaafde aan marijuana, sodra hy ‚hoog' begin voel geen begeerte vir meer van die verdowingsmiddel nie. Die rook daarvan kan ook opeens gestaak word sonder die geestelike en liggaamlike nood wat met die ontnemingsimptome van morfienverslaafdes vergelyk kan word. Die uitwerking van *Cannabis* word dadelik merkbaar en dit verdwyn weer binne een tot drie uur. Alhoewel sommige rokers rusteloos en spraaksaam word, ondervind die meeste 'n gevoel van welsyn, ontspanning en onbewustheid van die omgewing gevolg deur lomerigheid. Dit is moeilik om verstandelike aandag toe te spits en te handhaaf.

4. Die *Cape Times*, 9 September 1950.
5. *Mayor's Committee on Marihuana* (1944): *The Marihuana Problem in the City of New York*. Pennsylvania: *Jaques Cattell Press*.

In company, the subjects were given to talkativeness and good-natured joking. The pleasurable effects of marihuana, usually regarded as euphoric, were frequently interrupted by apprehension of varying degree. In a limited number of persons there were alterations in behaviour giving rise to unconventional acts, anxiety reactions, antagonism and eroticism. However, any tendency towards violence was expressed verbally and not by physical actions. Physical symptoms experienced were tremor, ataxia, dizziness, a sensation of floating in space, nausea and a desire to urinate. Psychotic episodes occurred very rarely and were of short duration, being characterized by mental confusion and delirious excitement, with periods of laughter and of anxiety.

It was concluded that marihuana does not change the basic personality structure of the individual. While it lessens inhibition and brings out what is latent in the thoughts and emotions, it does not evoke responses which would be totally alien. Marihuana is not a drug of addiction, comparable to morphine and, if any tolerance is acquired, it appears to be of a very limited degree. The drug produces its effects in man through its actions on the central nervous system.

While it does not at present appear likely that dagga will provide as serious a problem as does its American counterpart (for in some cities the drug is reported to have obtained a hold even on children [6]), a careful study of the social effects and psychological actions of dagga is long overdue.

6. Walton, R. P. (1938): *Marihuana: America's New Drug Problem.* Philadelphia: J. B. Lippincott Co.

In geselskap was die proefpersone geneig om spraaksaam te wees en grappies te maak. Die aangename uitwerking van marijuana wat gewoonlik as eufories beskou is, is dikwels deur vrees van 'n wisselende graad onderbreek. By 'n beperkte aantal persone was daar gedragsveranderings wat aanleiding gegee het tot onkonvensionele dade, vreesreaksies, vyandigheid en erotiese verskynsels. Alle neiging tot geweld is egter slegs deur woorde gelug en nie deur dade nie. Die volgende liggaamlike simptome is ondervind: bewerigheid, ataksie, duiseligheid, 'n gevoel van in ruimte te sweef, mislikheid en 'n begeerte om te urineer. Psigotiese episodes het uiters selde voorgekom, was van korte duur en is gekenmerk deur verstandelike verwarring en ylhoofdige opgewondenheid met tydperke van gelag en vrees.

Daar is afgelei dat marijuana nie die basiese persoonlikheidstruktuur van die individu verander nie. Alhoewel dit inhibisies verminder en wat in die gedagtes en emosies latent is na die oppervlakte bring, verwek dit nie reaksies wat heeltemal vreemd is nie. Marijuana is nie 'n verdowingsmiddel met 'n verslaafdheidsvermoë wat met morfien vergelyk kan word nie en wanneer weerstand verkry word, skyn dit slegs in beperkte mate te wees. Die verdowingsmiddel veroorsaak sy uitwerking by die mens deur sy inwerking op die sentrale senuweestelsel.

Alhoewel dit nie op die oomblik waarskynlik lyk dat dagga so 'n ernstige probleem sal skep as sy Amerikaanse teenvoeter nie (want daar word berig dat die verdowingsmiddel in sommige stede selfs 'n houvas op kinders gekry het [6]) is 'n sorgvuldige ondersoek van die maatskaplike gevolge en sielkundige inwerking van dagga reeds lank agterstallig.

6. Walton, R. P. (1938): *Marihuana: America's New Drug Problem.* Philadelphia: J. B. Lippincott Mky.

## ANNOTATION

### HAEMYTHOLOGY: II

BY POLIOCYTE

*Haemoglobin Estimation.* It is a general rule that the more instruments that have been invented for a certain estimation, the less satisfactory the results are. During the hundred years since Welcher [1] first compared the red colour of a drop of blood with a series of colour scales—the procedure now going under Tallqvist's name—more than one method for haemoglobin estimation has been suggested every year.

In spite of this avalanche of instruments, the haemoglobin estimation is to-day the simplest and one of the most accurate haematological investigations. With a well-calibrated instrument the error is less than 3% [2]; but it is still advisable to look at the patient's mucous membranes before accepting any given figure. In one clinic it was noticed that although the patients were as white as laboratory coats, the haemoglobins were all about normal. A technician suffered from hay fever and when blowing out his pipettes different quantities of upper respiratory secretions found their way into the diluting fluid. The turbidity produced was duly read as haemoglobin in the colorimeter. Perhaps an ingenious soul may invent yet another machine: the anti-histaminic haemoglobinometer!

The *enfant terrible* of haematology, the 'haemoglobin percentage', remains eternally young like the children of the weekly comics. The story goes that one unfortunate person (with 15.5 gm. of haemoglobin per 100 ml. of blood) was first given a blood transfusion in Bern because his haemoglobin was 87% (Sahli), and later had a pint taken off in London as the percentage there was 112 (Haldane). As patients are, he naturally enjoyed the excitement and has since gone to the Rivièra for a small rest.

The haemoglobin content should be expressed in gm.

1. Welcher, H. (1854): Vrtschr. f.d. Prakt. Med. **44**, 11.
2. Biggs, R. and MacMillan, R. L. (1948): J. Clin. Path., **1**, 269.

per 100 ml. This would also finally dispose of the outworn colour index which is based on an inaccurate red cell count and a purely arbitrary normal haemoglobin content. Even if these two could be accepted, the colour index still remains one of these wonderful medical contraptions that solves one equation with two unknowns—the volume of the red cell and its haemoglobin content.

To reiterate:—haemoglobin estimation is simple and reliable. It is less simple to determine the range of normality. From 12 to 18 gm. per 100 ml. covers all normal men and women, but there is no doubt that 12 gm. in one person would mean anaemia and 18 gm. in another would indicate polycythaemia.

*Haematocrit.* The packed cell volume is the second accurate determination. Daland's (1891!)[3] micromethod, which saves the doctor time and the patient the dreaded venipuncture (and is far too little used), is apparently the most reliable and carries an error of less than 1%.[4]

Most people still stick to the classical (1935!)[5] anticoagulant mixture of oxalates, which takes hours to weigh out and dry, partly because it is classical and partly because 'heparin is too expensive'. One bottle of heparin, costing about £1, will prevent the clotting of 100,000 ml. of blood and will therefore serve for about 200,000 microhaematocrits (0.0012 of a penny a time). It does not in any circumstances alter the volume of the red cells.

The theoretical objection to the haematocrit, that no criterion has been formulated for the speed and time of spinning for complete packing, one should probably disregard. The use of one centrifuge at a standard speed for a standard time will give comparable results from one laboratory. Koeppe's criterion[6] that complete packing has occurred when one can read a newspaper through the column of red cells may be applied, but the introduction of too much newspaper reading in a busy laboratory is undesirable.

There are thus two simple methods by which the presence or absence of anaemia can be determined with satisfactory certainty. The mean corpuscular haemoglobin concentration, i.e. $\left(\frac{\text{Haemoglobin in gm.}}{\text{Packed Cell Volume}} \times 100\right)$, which is the only absolute index worth working out, may give some indication of the type of anaemia. In this connexion it may be suitable to point out that the so-called hyperchromic anaemia, if this implies that each red cell carries more than a normal concentration of haemoglobin, does not exist. There is very good evidence[7] that with a M.C.H.C. of 34% the haemoglobin molecules are packed like sardines in the space of the red cell. A M.C.H.C. higher than 34% should therefore be viewed with suspicion, the only possible exception perhaps occurring in acholuric family jaundice.[8]

Otherwise the diagnosis must rest on other investigations of which the blood film is one of the more informative.

*The Peripheral Blood.* This Annotation is no textbook of haematology. Even if it were, little would be learned from it. Platycytes, depranocytes, siderocytes, spherocytes and many other cells loom of necessity in all textbooks, but only experience in the making and staining of slides and in the use of the microscope will convince one that most, if not all, of these cells can be produced artificially from perfectly normal blood by imperfect technique.

When a reliable technique has been acquired, the recognition of the different cells encountered in the peripheral blood is really not a difficult matter. It is certainly much easier than such clinical procedures as the spacing of heart murmurs. If one courageously disregards the bombastic names created by haematologists for simple morphological changes in shape, size and colour of the cells, anybody with a normal complement of poliocytes[9] can recognize these cells if he knows how to use a microscope.

The integration and interpretation of what one sees is a matter of accumulating knowledge. The classical pictures become as familiar as the inane faces of film stars. The small, pale, misshapen red cells of iron deficiency anaemia can only be confused with the cells of the rare Cooley's anaemia which look as if they have been torn to bits by some inner explosive force. But Cooley's anaemia is haemolytic in character and the haematocrit shows the deeply yellow plasma which distinguishes it from iron deficiency, with the plasma looking like turbid water.

Similarly, the large cells of the pernicious anaemia group burdened with haemoglobin, often oval or banana-shaped, but always markedly varying in size, are utterly characteristic. If they are combined with a diminished number of aged, hypersegmented granular white cells and scanty platelets, the diagnosis is nearly a certainty.

It is gratifying to come across the unexpected malarial parasite, and one feels quite like a mature haematologist when one spots the small-diameter round cells of acholuric family jaundice or the vague signs of sickled cells in the peripheral blood.

It should always be remembered that although anaemia is extremely common, the primary diseases—if this term is ever justified—of the erythron are rare conditions. Even in a large hospital the haematologist is lucky if he sees some 6-10 cases of true Addisonian pernicious anaemia in a year, and 'idiopathic' iron deficiency anaemia is rapidly fading from the scene as knowledge increases. It must therefore again be stressed that haematology is only an auxiliary weapon in the diagnostic armament. What can be a greater tragedy—medical and human—than a small carcinoma spreading unattended in the large gut of a middle-aged woman, because her blood picture is undoubtedly that of pernicious anaemia. In fact, with the advent and now exaggerated use of sternal puncture, the study of a tiny bit of tissue is often looked upon as the 'open Sesame' to the diagnosis of every blanched patient. This is a grave misconception.

*The Bone Marrow.* The intense study of the bone marrow during the last 20 years has led to a more complete understanding of haemopoiesis and its disorders, and the bone marrow still remains one of the most useful

3. Daland, E. (1891): Fortschr. Med. Berlin. **9**, 867.
4. McLain, P. L. (1947): Science, **106**, 275.
5. Wintrobe, M. M. and Lansberg, J. W. (1935): Amer. J. Med. Sci., **189**, 102.
6. Koeppe, H. (1905): Pflug. Arch. Physiol., **107**, 187.
7. Drabkin, D. L. (1945): Science, **101**, 445.
8. Guest, G. M. (1948): *In* Ponder, E.: *Haemolysis and Related Phenomena.* New York: Grume and Stratton.
9. Poirot, Hercules: *In* Christie, Agatha. *Any Work.*

objects for the haematological research worker. The dangers of sternal puncture, of which the death roll in the nature of things remains unrecorded, can now be avoided by the use of the spinous process or the iliac crest puncture. But to the patient the procedure still remains gruesome.

When folic acid was first introduced it was natural to try it out on a few known cases of pernicious anaemia. The Houseman was told to get hold of a lady who in the past had been a most willing guinea-pig. It was arranged that she should be admitted to the ward on the following Monday, but on Sunday evening the Houseman got an urgent telephone call from the lady: 'Please excuse me, Doctor. Do you mind waiting for me for a week or so? I really don't feel well enough to come into hospital to-morrow.'

So it is only natural that the pendulum has started to swing the other way.

In the latest textbook on clinical pathology,[10] the author does not accept bone marrow biopsy as a basic haematological routine. The diagnosis is so frequently obvious from the peripheral blood examination.

In our personal experience the main use of the bone marrow is in the obscurer forms of leukaemia, not to decide the type of leukaemia (which is after all mainly an academic pursuit), but to diagnose the condition without any doubt. In early cases it may often be well-nigh impossible.

The group of aplastic anaemias is similarly difficult. Aplasia may be the first and only manifestation of leukaemia; occasionally one may be lucky and pick out a few carcinoma cells in the marrow; or the aplasia is due to one of the reticuloses or storage diseases. The greatest trouble is that one knows that some 'idiopathic' aplastic anaemias recover after months' or even years' repeated blood transfusion, so an early diagnosis is imperative, although often extremely troublesome.

One wonders if a humble appeal would carry any weight. Do not eagerly give a 'shot' of liver and then send the patient into hospital for diagnosis. If the anaemia were megaloblastic, one liver injection is quite sufficient to muddle the whole picture and it may take up to two months before the marrow returns to its original diagnostic state.

The so-called myelogram is pathetically inaccurate and misleading (in the manner of the mystic figures mentioned earlier). It should only be used in the training of haematologists or technicians to force them, if possible, to recognize the many variants of cells met in the bone marrow. Wells' dictum[10] might appropriately be displayed in every laboratory: 'In the field of cell morphology, intellectual honesty is almost as rare a distinction as skill.'

10. Wells, B. D. (1950): *Clinical Pathology*. Philadelphia and London: W. B. Saunders Co.

# CHRONIESE ETTERVORMENDE OSTEÏTIS

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(*Vervolg van bl.* 268)

DIE BEHANDELING

*Die voorbereiding vir operasie* is van die allergrootste belang; gevalle met chroniese ettervormende osteïtis is gewoonlik nie dringend nie, daarbenewens is hul gesondheidstoestand swak. Die vereistes is dié wat aandag bestee aan die bloedarmoede, 'n doeltreffende gelyk van penicillin en Aureomycin in die bloedsomloop, die gelyk van die plasmaproteïene, en die asemhalingstelsel en urienstelsel. Ook is röntgenondersoek van enige sinus nodig nadat dit met lipiodol ingespuit is.

*Die operasie moet sorgvuldig en sistematies deurgevoer word* om blywende genesing te verseker.

1. 'n Aarpers word gebruik sodat bloed nie die gesig belemmer nie. Die sfigmometer is die enigste soort wat veilig is, en kan vir 'n paar minute elke uur losgemaak word as die operasie 'n lang tyd duur.

2. Voordat die snit gemaak word, word elke sinus met metileenblou ingespuit sodat al hul vertakkinge met sekerheid gesien en verwyder kan word.

3. Die beste operatiewe benadering is dié wat die beenletsel direk bereik, maar senuwees en belangrike slagare moet vermy word.

4. Die periost en aangehegde weefsels word versigtig behandel want van hierdie weefsels is die verharde been se sirkulasie afhanklik; buitenspörige afstroping stel die besmette been in nog groter gevaar.

5. Gewoonlik moet 'n laag van verharde been eers weggeneem word om toegang vir die lewevernietigende middels te vergemaklik, om diep sekwesters te kan uittrek, en om diepleggende besmette been makliker te kan verwyder. 'n Beenboor word aanbeveel vir die maak van gaatjies om die area van die been so 'n bietjie te verswak, voordat 'n beitel gebruik word vir die verwydering van die verharde been; sodoende is die gevaar van vetembolie en van beenbreuk verminder. Veiligheidshalwe moet alleenlik boorpunte gebruik word wat van spesiale sterk staal vervaardig is; anders breek hulle baie gou, om hulle dan uit te kry is baie moeilik, en die ontsteking word vererger as hulle daar in die been bly.

6. Alle sekwesters, alle besmette been, alle littekenweefsels, en elke sinus word sorgvuldig geheel en al verwyder. Enige agterblywende sekwester, besmette been, littekenweefsel of sinus herberg patologiese bakteriee. Die venster wat in die verharde been uitgebeitel was, verskaf toegang vir die uittrek van sekwesters: 'n röntgentoestel in die operasiesaal is noodsaaklik, ten einde fotos voor

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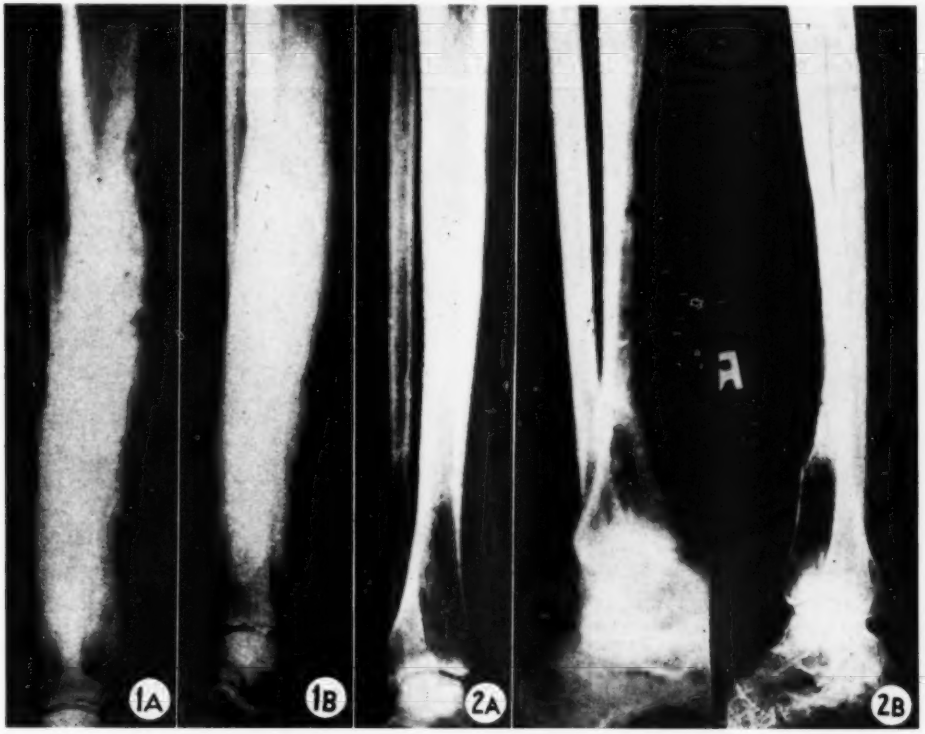
beëindiging van die operasie te neem en om sodoende te verseker dat alle sekwesters weg is. Die beste waarborg dat al die verharde en nekrotiese been wel verwyder is, is die bewys van been wat goed bloei. In sekere pasiënte kan die algehele verwydering van besmette been in die een operasie 'n beenbreuk veroorsaak; dan moet die verwydering versigtig en wel in stadia gedoen word.

Die einddoel van al hierdie verwydering is om 'n skoon holte soos 'n piering te vorm; etter kan dan makliker uitskei, en oorplanting van been en huid, indien nodig, word vergemaklik.

In die *Brodie-asbes* word die besmette beenmuur deeglik gekuretteer; sekwestertjies is soms aanwesig binne die asbes en moet ook almal uitgehaal word. In alle gevalle word die etter en die stukkies besmette been en die sinus bakteriologies ondersoek, en wel vir gevoeligheid teen die lewevernietigende middels.

7. Die area word dan heeltemal skoongemaak sodat al die beenstof weg is. Röntgenfotos word dan geneem vir sekwesters wat nog daar kan wees. Dan word die aarpers gelos en *bloedstelping* verkry, want 'n hematoom in enige holte is 'n broeiplek vir wederkerende besmetting; geduld is noodsaaklik, want warm omslagte moet vir minstens tien minute gebruik word; elektrisestolling is




1. E.M., 30 jaar oud, het gekla van pyn in skeenbeen vir drie maande. Hy kon nie daarop staan nie; daar was plaaslike warmte-verhoogde liggaamstemperatuur, en die hele been was baie gevoelig en verdik. Daar was geen sinus nie. Die longe was normaal. Die Kahn-bloedtoets was positief. Biopsie is nie gedoen nie.

Foto 1*a*: Tydens eerste ondersoek.
1*b*: Na ses weke se anti-sifilitiese behandeling met arseen en bismut: die pyn het heeltemal verdwyn, geen warmte nie.

2. S.G., 45 jaar oud, diep brandwonde aan albei onderste ledemate: van die knieë na onder toe was die huid heeltemal vernietig rondom die ledemate, albei skeenbene was ontbloot aan die mediale en laterale oppervlaktes met vernietiging van die periost aldaar.

Foto 2*a*. Gesondheidstoestand ernstig: albei ledemate erg besmet met weerstandige gramnegatiewe en grampositiewe organismes; weens vernietiging van periost vorm elke voorgedeelte 'n lang verdikte sekwester.

Foto 2*b*. Nadat volgende operasies in vier stadia deurgevoer was. Sekwesterektomie elke been; en Thiersch-velente op albei ledemate. Heeltemal genees, en die pasiënt werk sonder om krukke te gebruik.

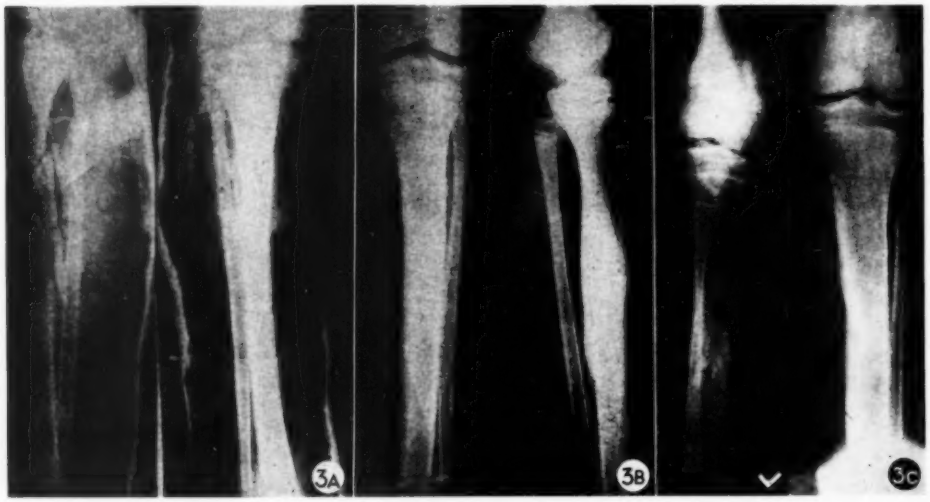
hulpsaam, asook gelatin-spons of die doeltreffender trombinvloeistof.

8. Nou moet besluit word: Kan die hele operasiewond toegeheg word? Kan die beenholtes so bly?

Die ideaal is om die huid *per primam* te laat genees deur volkome hegting sonder 'n uitvoerbuis, want in sowat 60% van gevalle van vertraagde hegting volg sekundêre besmetting met *B. proteus* en *B. pyocyaneus*. Volkome hegting word gedoen alleenlik as dit blyk dat die besmette en nekrotiese been meestal verwyder is, as die bakterieë nie te aktief blyk nie, en as die oorblywende beenholte nie te groot is nie. So nie, is dit veiliger om die wond oop te laat bly. In elk geval moet daar ook genoeg huid beskikbaar wees om volkome hegting toe te laat; 'n operasiewond wat met spanning geheg is, is geneig om herbesmet te word.

Waar dit veiliger is om die wond oop te laat bly, word gebruik van Thiersch-velente sterk aanbeveel. As hulle in posseël-grootte opgesny word, dan aard hul goed al is 'n mate van besmetting aanwesig; en die oorplanting veroorsaak geen skok aan die pasient nie. Tog is hulle soms net van tydelike nut, veral oor 'n oppervlakkige been soos die skeenbeen of waar 'n latere beenent-operasie daar nodig sal wees; want hulle is maar dun, hulle beseer maklik, en hulle word maklik ontsteek as gevolg van die prikkeling van sweet en stof.

Vir 'n latere beenent-operasie is *'n geneesde en duursame huid* 'n noodsaaklikheid. Dan is dit soms nodig om die Thiersch-velent deur 'n voldikte velent te vervang; so 'n velent verskaf die beste soort huid. Maar dit word oorgeplant van die buik of van die ander onderste ledemaat; dit vereis gewoonlik drie operasies, ervare verpleging, en lankmoedigheid van die pasiënt om heelwat ongerief vir sowat vier weke te ondergaan.




I.E., 14 jaar oud, het plaaslike osteïtis wat na 'n ope beenbreuk ontstaan het; versuim om 'n sekwester te verwyder, het 'n sinus en 'n jaar se ongeskiktheid veroorsaak.

Foto 3*a*. Die sekwester kort na die beenbreuk.

Foto 3*b*. Toestand tydens eerste besoek aan kliniek, n jaar na die beenbreuk. Die klein sekwestertjie is omsingel deur verharde been.

Foto 3*c*. Na verwydering van sekwestertjie, plus 'n Thiersch-velent. Bly heeltemal genees.

*tulle gras* as uitvoerbuis gebruik, dog dit moet nie soos 'n prop ingedruk word nie. Oor 'n week word die wond weer in die operasiesaal ondersoek en dan geheg as die kliniese toestand dit regverdig; indien nie, word dit deur Thiersch-velente bedek. *Die kliniese toestand*, t.w. liggaamstemperatuur, algemene toestand, hoe die wond daar uitsien en hoe dit ruik, gee altyd beter leiding in hierdie opsig vergeleke met bakteriologiese ondersoek; maar ervaring en gesonde oordeling is essensieel.

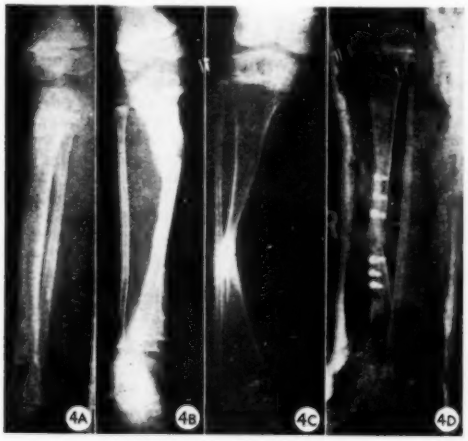
Om genesing van groot wonde aan te moedig en om genesing oor oppervlakkige beenholtes te verkry, word die

Daar is ander gevalle waar onbestendige huid nie tot genesing gebring kan word nie en wat gevolglik as chroniese osteïtis bestempel word. Röntgenondersoek bewys dat die been heeltemal gesond is, en vir hierdie tipe bring Thiersch-velente spoedige genesing.

*Die beenholtes moet ingevul word* om hulle uit te wis, tensy hulle baie klein is. Drie metodes kan gebruik word:

i. Beenente verkry van die kam van die dermbeen. Die twee kompaklaes bly *in situ*; net die sponsagtige been tussen die twee kompaklaes word uitgeneem en in klein stukkies opgesny voordat hulle binne die beenholte los

naasmekaar gepak word. Hierdie metode lewer die beste resultate op, en is die enigste wat aanbeveel kan word as daar die geringste twyfel oor plaaslike besmetting in die beenholte bestaan.




J.F., 10 jaar oud, akut: osteïtis van skeenbeen; die gipsspalk is tuis deur ouers afgeneem; 1½ jaar later is hy terug by die kliniek met 'n patologiese beenbreuk asook veelvoudige huidsere.

Foto 4*a*. Die septikemiese osteïtis na 'n paar maande.

Foto 4*b*. Die verswakte been twee maande later; op hierdie stadium is die kind huis toe met die hele ledemaat in 'n gipsspalk.

Foto 4*c*. Tydens die eerste besoek aan die kliniek nadat ouers 1½ jaar versuim het om hom terug te bring; nie-aansluiting.

Foto 4*d*. Twee maande se voorbereiding was nodig voordat hierdie beenent operasie gedoen kon word.

ii. Veloorplanting, in die wese van Thiersch-velente. Dis alreeds bespreek. Daar volg altyd 'n verbasende verbetering in die gesondheidstoestand van die pasiënt as daar net genesing van die huid verkry is, alhoewel sulke velente maar net van tydelike nut kan wees.

iii. Oorplanting van 'n naburige spier word ook soms gedoen. Gedetailleerde kennis van die binnespierse sirkulasiestelsel en senuweestelsel is 'n vereiste sodat hulle nie beseer word nie. Daarbenewens moet die spier nie verdraai word nie. Dit word binne die beenholte geplaas sonder enige hegting. Dit kan veral gebruik word waar die naburige gewrig alreeds styf is, of waar die spieroorplanting die ledemaat se funksie nie sal verswak nie.

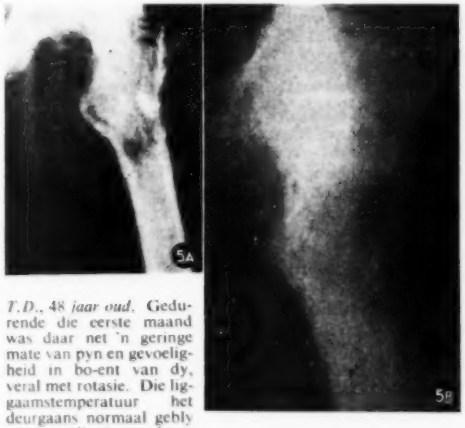
Die beenent-operasie word nie gedoen nie as daar 'n uitskeidende sinus of klaarblyklike bewyse van besmetting teenwoordig is. Die lewevernietigende middels verander nie hierdie teenaanwysinge nie, maar hulle laat net toe dat die beenent op 'n vroeëre stadium met sukses deurgevoer kan word. In die aanwesigheid van besmetting sal digte beenente altyd sekwesters vorm; sponsagtige beenente, veral dié wat van die dermbeen verkry is, aard nogal goed onder besmette omstandighede, tensy die besmetting hoogs boosaardig is, of tensy die plaaslike bloedsomloop nie juis bevredigend is nie.

Die ideaal is om die beenente by die eerste sekwesterektomie in te boet, as daar 'n taamlike holte is, en om die huid dan volkome te heg. Of die huid kan geheg word, en by 'n latere geleentheid (oor sowat twee weke) word die beenholtes met beenente ingevul. Indien primêre hegting nie heeltemal veilig blyk nie, word Thiersch-posseel-velente gebruik om die wond te dek; die merkwaardige algemene verbetering wat op genesing van die operasiewond volg, berei die pasiënt vir die latere voldikte veloorplanting en vir die beenentoperasies in geval hulle dan nodig is. Waar sekwesterektomie die been erg verswak, is dit raadsaam om sponsagtige beenente binne 'n paar weke in te boet, sodat dié die been sal versterk. As die Thiersch-velent sterk en gesond bly en die beenholte klein is, word dit so met welslae gelaat.

9. *Deeglike spalking is noodsaaklik.* 'n Gipsspalk is die doeltreffendste, en dit moet die gewrig sowel bo as onder die ontsteekte been insluit. 'n Crêpeverband toegepas oor genoegsaam wol, en wel binne die gipsverband, verminder die na-operatiewe edeem, vermy hematome, en bevorder genesing.

Hierdie spalking moet voortduur totdat die ondergenoemde vereistes albei verwesenlik is: (a) genesing van die beenbesmetting tesame met 'n bevredigende mate van versterking van die betrokke been; (b) algehele genesing van die ander weefsels.

10. *Lewevernietigende middels* word altyd gebruik, maar alleenlik volgens 'n verstandige plan anders sal hulle van min nut wees vanweë die ontwikkeling van weerstan-




*T.D., 48 jaar oud.* Gedurende die eerste maand was daar net 'n geringe mate van pyn en gevoeligheid in bo-ent van dy, veral met rotasie. Die liggaamstemperatuur het deurgaans normaal gebly weens toediening van lewevernietigende middels. Hierdie subakuut osteïtis was eers vir 'n neoplasma aangesien. Daar is 'n opmerkenswaardige verskil tussen hierdie tipe, en die soort wat in kinders voorkom.

*Foto 5a.* Letsel in diafise van dybeen, ongeveer een maand na die aanvang van simptome.

*Foto 5b.* Ná 'n uitgebreide sekwesterektomie, plus beenente van die dermbeen-kam, plus „posseel" velente—wat nou genesing aanbring na 'n jaar se behandeling. Immobilisering in 'n dubbele heup gips-spika volgens die Winnett-Orr metode.

dige bakterieë. Vermoedelik sal Aureomycin vir penicillin verplaas wanneer eersgenoemde goedkoper word. Aureomycin is nie toksies nie, is hoogs doeltreffend en wel deur mondelinge toediening, en die middel is ewe kragdadig teen die grampositiewe en die gramnegatiewe bakterieë.

Om weerstandigheid te voorkom, is dit 'n goeie plan om beide Penicillin en Aureomycin van die staanspoor te gebruik. Indien weerstandigheid reeds teenwoordig is, het 'n vermeerderde dosis soms 'n goeie uitwerking.

Vir *B. pyocyaneus* is Polymixin taamlik doeltreffend. Vir *B. proteus* word plaaslike toediening van 1% asynsuur aangeraai, dog is nie altyd suksesvol nie. Ook word plaaslike besproeiing met penicillin-vloeistof in baie gevalle van chroniese osteïtis gebruik; dit word toegedien deur middel van kateters wat deur die gipsspalk gaan en die beenholte-area bereik. Daar is die groot gevaar van sekundêre besmetting hieraan verbonde; maar waar die been nog baie dig is, verseker dit altans dat die middels die besmette beengedeelte bereik.

Altyd moet in die oog gehou word dat die lewervernietigende middels hoofsaaklik die bakterieë se vermeerdering teëwerk sonder om noodwendig kiemdodend te wees. Weerstandsvermoë van die pasiënt, en dus *die gesondheidstoestand, bly altyd uiters belangrik*. In die behandelingsplan moet derhalwe aan die hele liggaam aandag bestee word.

Daar is nog twee behandelingsmetodes wat nooit nodig behoort te wees nie. In sommige verwaarloosde gevalle van osteïtis van die voet in volwassenes, veral waar die organismes weerstandig is en waar 'n lang ongeskiktheidsperiode nie bekostig kan word nie, sal *amputasie* die beste uitweg wees. Waar karsinoom in 'n sinus ontwikkel het, is dit vanselfsprekend die enigste metode. Vir osteïtis van die skuitbeen en die sleutelbeen is *diafisektomie* al met welslae gedoen.

### BEPAALDE SKELETGEDEELTES

Dieselfde beginsels geld, maar graag word sommige kenmerkende moeilikhede net kortliks bespreek.

*Die benige bekken.* Hier is osteïtis altyd ernstig weens die naburige belangrike organe, en vanweë die dieplegende besmette been, wat deeglike chirurgie bemoeilik. Die gewone komplikasie is *'n abses* wat agter die buikvlies na onder toe of na boontoe deurtrek. Hierdie absesse is in werklikheid baie groter as wat die kliniese toestand aandui. Buikvliesontsteking kan volg. Dreinering van die abses sonder om die besmette been te verwyder, veroorsaak 'n *chroniese sinus*; dié kan veral in hierdie pasiënte amiloïedontaarding bewerkstellig.

Sekwesters kan die urienblaas binnedring. Die sakraaldermbeen-gewrig word dikwels aangetas maar dit vererger die toestand nie aansienlik nie. Gewoonlik word die heupgewrig ook besmet en dan volg 'n mate van ankilose, om nie eens van heupmisvorming te praat nie.

In al hierdie gevalle is die gesondheidstoestand swak as gevolg van die vorige langdurige bloedvergiftiging. Operasies wat tot dreinering van absesse en verwydering van sekwesters beperk is, sal nie volkome genesing verskaf nie. Gunstiger resultate is onlangs verkry deur die opsetlike *verwydering van die hele besmette gedeelte* van die dermbeen; aangesien dit 'n baie groot operasie is, kan dit alleenlik in uitgekose gevalle aanbeveel word; altans sal hierdie anatomiese verandering nie 'n latere bevalling belemmer nie. Vir die allerbelangrike plaaslike rus is 'n bekkendraagband of 'n dubbele gips heup-spika noodsaaklik.

*Die ruggraat.* In die onderskeidende diagnose is die röntgenfotos beslissend, alhoewel biopsie van die werwels ook behulpsaam is.

Op 'n vroeë stadium wys die röntgenfotos vernietiging van die tussenwerwelskyf aan, met 'n daaropvolgende vernouing van die tussenwerwelspasie. Vernietiging en verswakking van die werwels bly maar gering, en dus volg daar nie veel misvorming soos dit in tuberkulose aangetref word nie. *Periostale reaksie* is altyd aanwesig en wel op 'n vroeë tydstip van die ontsteking, vergeleke met tuberkulose wat dit op 'n latere tydstip aanwys. Veral brusellose, 'n vorige beenbreuk, en sifilis moet in die oog gehou word. Ankilose van die betrokke gedeelte van die ruggraat geskied uiteindelik. Verspreiding na die naburige rugmurgvlies is 'n seldsame komplikasie. Etter of abses kan die lendespier-skede prikkel en sodoende 'n verwarrende heup-buigingmisvorming veroorsaak.

Die *Bladbeen.* Hier is osteïtis 'n seldsame verskynsel. Òf besmette wonde òf septikemie veroorsaak die plaaslike letsel. Die beengebreke wat deur die afskeiding van sekwesters bewerkstellig word, word nie met nuwe been ingevul nie maar net met veselweefsel. Die ernstigste komplikasie is empieem, wat volg as die besmetting die borskas deurdring. Die operatiewe benadering is langs die binnerand van die been, terwyl die pasiënt op sy maag lê met die arm in abduksie. Die dun been is besonder verswak, derhalwe moet soveel periost as moontlik behou word om latere beenvernuwing te vergemaklik; net die sekwesters wat heeltemal los is, moet uitgetrek word en wel met versigtigheid. As dit nodig is om die grootste gedeelte van die been te verwyder weens 'n verspreide besmetting, dan moet die skouerpunt en die kraaibekuitsteeksel en die gewrigsholte behou word.

Hierdie bladbeen-besmettinge is geneig om gedurigdeur te hervat. Gewoonlik word daar 'n buitegewrigsankilose veroorsaak deur vergroeiings, wat die bladbeen aan die borskas vasbind; maar die funksie bly nogal taamlik tensy die skouergewrig ook deur verspreiding tot 'n toestand van ankilose verander word.

*Die onderkaak* word dikwels besmet. Van die sewe bene wat gewoonlik deur osteïtis getref word, is die rangskikking: dybeen, skeenbeen, bo-armbeen, speekbeen, elmboogbeen, hakskeenbeen, en onderkaak.

Die osteïtis in die onderkaak word veroorsaak deur: (a) beenbreuk wat die tandkas binnedring; (b) tandabses; (c) abses in die naburige nekweefsels; (d) septikemie. Nekrose is 'n gewone gevolg; die sekwesters bestaan dikwels uit groot gedeeltes van die onderkaak; in ander gevalle is daar net 'n groot getal klein stukkies. Dit duur sowat drie maande vir voldoende versterking van die agterblywende kaak deur die beenvernuwing, voordat sekwesters veilig verwyder kan word sonder om die kaak aan 'n patologiese breuk bloot te stel. Met behulp van huidige spalkingmaatreëls vir die onderkaak, en wel in samewerking met tandheelkundiges, kan die sekwesterektomie vroeër in sekere gevalle gedoen word. Die operatiewe benadering is langs die onderrand van die kaak sodat geen afsigtelike littekens agterbly nie. Voordat sekwesters uitgetrek word, moet hulle daar los uitsien op die skiagram met bewyse van 'n taamlike sterk kaak.

Die dreinering moet doeltreffend bly. Sponsagtige beenente aard goed in die kaak, versterk die been, en moedig genesing aan.

*Die vingerbeentjies.* Vanweë die gevaar dat vergroeiings die buigspier-seningskede kan vasbind, of dat besmetting die skede kan vernietig, moet vingers in die buigingposisie van funksie gespalk word. Die doeltreffendste is 'n smal Cramerdraad-spalkie, in 'n gipsspalk op die onderarm, met trekking vir die vinger van die nael tot die ent van die spalkie. Dikwels vorm 'n groot gedeelte van die beentjie 'n sekwester; daar moet altyd gewag word totdat genoeg beenvernuwing plaasgevind het voordat so 'n sekwester uitgetrek word, dan kan die uiteindelike funksie byna normaal bly. Gewoonlik moet sowat twee maande gewag word voordat die groot sekwesters heeltemal los is en voordat die nuwe beenskede op die röntgenfotos duidelik aangewys word.

OPSOMMING

1. Die kenmerkende patologie van chroniese ettervormende osteitis bestaan uit been wat verhard is, beenholtes wat besmet is, en die plaaslike bloedsomloop wat belemmer is.

2. Die gesondheidstoestand is gewoonlik onbevredigend. Dit moet oor etlike weke verbeter word voordat enige operasie gewaag word.

3. Die verspreide besmetting in die betrokke been vereis stelselmatige en deeglike chirurgie om volkome genesing te verkry; die besonderhede verskil vir elke pasiënt, en daarom moet die behandeling sorgvuldig beplan word vir elke geval.

4. Omrede die duur en die moontlike komplikasies van hierdie beenletsel, is die opvoedkundige funksionele en ekonomiese rehabilitering van die pasiënt 'n noodsaaklike gedeelte van die algemene behandelingsplan.

## THE GUILLAIN-BARRÉ SYNDROME OR POLYRADICULONEURITIS

G. DEAN, M.B., CH.B., M.R.C.P. (LOND.)
*Port Elizabeth*

In 1916, Guillain, Barré and Strohl described a severe form of flaccid paralysis occurring in the absence of fever. As the nerve roots were apparently involved, the name polyradiculoneuritis was proposed for this type of polyneuritis. The paralysis was usually symmetrical and increased over a few days; the tendon reflexes disappeared although the cutaneous reflexes persisted. Subjective sensory changes were present although objective changes were minimal. The muscles affected were usually tender to pressure. In the cases originally described recovery was complete.

In 1859, Landry described a spreading form of paralysis which often involved the muscles of respiration with a fatal result. In 1908, Laurens described 18 cases of apyrexial paralysis in which involvement of the facial nerve was a common feature. Both Landry's paralysis and Laurens' paralysis are now considered to be examples of polyradiculoneuritis.

The differentiation of polyradiculoneuritis, or the Guillain-Barré syndrome, from poliomyelitis is of fundamental importance. With the former there is no fever at the time of paralysis, although occasionally there is a history of slight fever two or three weeks earlier. The paralysis, which is often symmetrical and ascending in nature, increases over the course of a few days. There is usually no increase in the cerebrospinal fluid cell count although the protein is increased. If the patient does not die from respiratory involvement, recovery is complete. In poliomyelitis there is fever immediately before and at the time of paralysis; and the paralysis is usually sudden in onset. In addition to an increase in the protein, the cells in the cerebrospinal fluid are markedly increased. Finally, recovery from the paralysis is nearly always incomplete.

Five cases of a syndrome similar to that described by Guillain and Barré are reported, having been seen by the author within the past three years.

The first patient was a European woman, 40 years old, who complained that for seven days before consultation both her arms and legs had become increasingly weak. On examination her temperature was normal, all the muscle reflexes were absent. The cerebrospinal fluid was under increased pressure at 180 mm. of water, and on pathological examination the fluid was normal except that the protein was increased. In the next 48 hours she became increasingly weak, the muscles of respiration gradually failed, and she was placed in a mechanical respirator. She died the following day, 10 days after the onset of symptoms.

A European schoolmaster complained of weakness in both arms and legs which started 48 hours before consultation. He also complained of an inability to bear down at stool, and that he found breathing difficult. His mind was clear, his temperature normal, and he did not feel ill. His respiration rate was 40 per minute and his breathing shallow. The pulse rate was 150 per minute. There were moist sounds at the bases of both lungs. Respiration was diaphragmatic. The throat was injected, but not actually inflamed, and did not suggest diphtheria. All the muscle reflexes were absent. A few hours later he had only the slightest movement in the fingers and toes, and had bilaterial facial paralysis. The cerebrospinal fluid was under normal pressure, and microscopically there were five lymphocytes per c.c. The protein was slightly raised at 120 mg. per 100 c.c., but the fluid was otherwise normal. A diagnosis was made of acute polyradiculoneuritis of unknown cause. He was placed in the mechanical respirator, but nevertheless died the same day at a time when the respirator had ceased to function.

A European (aged 21) felt weak the day after a strenuous game of rugger. Forty-eight hours later his legs were so weak he could not walk, and he swallowed only with difficulty. His temperature was normal, his mind clear, and he felt otherwise well. He was admitted to hospital where he was examined. By then he was cyanosed, with rapid respiration, and paralysed except

for a slight movement in the fingers and toes. Both facial nerves were involved. All the jerk reflexes were absent. The Babinski responses were extensor. There were moist sounds in all areas of both lungs, and that evening his temperature rose to 103° F. The cerebrospinal fluid was under raised pressure at 190 mm. of water. There were 10 lymphocytes per c.c., and the cerebrospinal fluid protein was 50 mg. per 100 c.c. He was placed in a mechanical respirator, where he remained for a week, and was given penicillin 100,000 units 4-hourly. He gradually recovered; six weeks later he was walking, and after three months there was no residual paralysis. During the acute stage samples of blood and faeces were sent to the Poliomyelitis Research Unit, Johannesburg, but the poliomyelitis virus was not found to be present, nor could any other pathogenic virus be isolated.

A European woman (aged 23) complained of weakness in both arms and legs. This had increased in the seven days before she was seen, by which time she could only walk with the greatest difficulty dragging one leg after the other. No pathology could be found in the central nervous system. However, it was considered that her weakness was real. Over a period of three weeks she made an uneventful recovery.

A European woman (aged 40) complained that over the previous two days she had noticed increasing weakness in both arms and legs and in her back. She could not stand except with great difficulty, and there was insufficient power in her wrist to turn on her oven switch. In herself she felt well. On examination there was no complete paralysis, but marked weakness in her arms, legs and back. Her ankle jerks were absent, the other jerk reflexes were present but reduced. The right Babinski response was extensor, the left doubtful. The temperature and pulse were normal. In the next 48 hours the symptoms progressed until she could not feed herself, and she had the greatest difficulty in swallowing. The tendon reflexes were now all absent. The cerebrospinal fluid was under slightly increased pressure, but owing to contamination with blood it was impossible to count the cells present. The Wassermann reaction was negative. There was no reaction of degeneration in the muscles. She gradually improved; two months later she had completely recovered.

SUMMARY

Five cases of unusual paralysis are described. The main features were the gradual onset of a flaccid paralysis in the absence of fever with the abolition or diminution of tendon reflexes and no objective sensory or mental changes. In no case were the cerebrospinal fluid cells much increased although, whenever tested, the protein was higher than normal. An interesting feature is the involvement of the pyramidal tract in two of the patients, showing that the infection was not confined solely to the nerve roots. In no instance could alcohol or diphtheria be incriminated, nor was there history of metallic or organic poisoning.

In the present state of our knowledge the cases described must be classified in the Guillain-Barré group. In the absence of any known factor it may be presumed that this syndrome is due to a virus, but no virus has so far been isolated. Recently a new virus, the Coxsackie virus, which causes a flaccid paralysis in suckling mice, has been considered responsible for a poliomyelitis-like syndrome in America; this is a different virus from the true poliomyelitis virus which affects monkeys. There is good reason to hope that the virus or viruses responsible for the Guillain-Barré syndrome may soon be isolated.

In this syndrome, if the patient does not die from respiratory paralysis, recovery is good. The importance of arranging that an efficient mechanical respirator is at hand at the onset of such paralysis must be stressed; the 'iron lung' undoubtedly saved the life of one of the cases described. Vitamin $B_{12}$ might be tried, and the new antibiotics Aureomycin and Terramycin. Muscle spasm does not appear to play any part. Physiotherapy is beneficial in hastening the return to normal movement. As yet there is no known specific treatment.

I would like to thank all the doctors concerned with these cases for their help and co-operation in the preparation of this article.

REFERENCES

Bradford, J. R., Bashford, E. F. and Wilson, S. A. (1919): Quart. J. Med., **12,** 88.
Dagnelie, J. (1938): J. Belge Neurol. Psychiat., **38,** 282.
Guillain, G. (1936): Arch. Neurol. Psychiat., **36,** 975.
Guillain, G. (1938): J. Belge Neurol. Psychiat., **38,** 322.
Guillain, G., Barré, J. A. and Strohl, A. (1916): Bull. Soc. Med. Hop., Paris, **40,** 1462.
Holmes, G. (1917): Brit. Med. J., **2,** 37.
Laurens, A. (1908): Paris thesis, No. 210.
Petch, C. P. (1949): Lancet, **257,** 405.
Shaffer, J. O. (1946): J. Amer. Med. Assoc., **131,** 285.
Test, C. E. (1946): *Ibid.*, **132,** 1070.

## PASSING EVENTS

Congratulations to Dr. and Mrs. M. Cole-Rous on the birth of a daughter.

* * * *

Dr. James Black of Johannesburg leaves for overseas at the beginning of May. He will return to his practice in September.

### MEDICAL CHRISTIAN FELLOWSHIP: INAUGURAL MEETING

On Tuesday 6 March at the Medical School, Mowbray, the newly-formed Medical Christian Fellowship of South Africa held its first meeting in Cape Town. A good number of doctors, dentists and students met to hear Dr. G. W. Gale speak on *Christianity in Medical Practice*.

From the chair, Prof. J. F. Brock explained the aims of the Medical Christian Fellowship—briefly, to promote the Christian faith among medical men and to provide opportunity for fellowship and for discussing common needs. Prof. Brock declared his personal belief in the Christian faith, because he had seen its effects in the lives of men.

Dr. Gale then began by describing his Christian upbringing and the influence it had had on his whole life. He said his faith was founded not so much on any particular creed as in a person—Jesus Christ—who was not merely a dead prophet of 2,000 years ago, but a living spirit able to impart His very life and nature to anyone who entrusted his life to Him.

Thus it was that with His help doctors could fulfil in some measure their great calling, that of healing men's bodies and introducing them to the only Healer of men's souls.

A film *God of Creation*, depicting some of the wonders of astronomy and biology, was then shown.

At the close of the meeting, Dr. Opie, Chairman of the local Medical Christian Fellowship Committee, invited anyone interested to join the Association.

## REVIEWS OF BOOKS

### SURGERY

*Principles and Practice of Surgery*. By Jacob K. Berman, A.B., M.D., F.A.C.S. (Pp. 1378 + xvi. With 429 figures. £6 7s. 6d.) The C. V. Mosby Company.

*Contents*: *Part* 1. General Considerations of Surgical Principles. 1. Historical Review. 2. Pathology.
*Part* 2. Local Response and General Body Reactions to Injury. 3. Repair—The Reactions of Tissue to Mechanical Trauma. 4. Bacterial Invasion—The Reactions of Tissues and the Body as a Whole to Bacterial Injury. 5. Clinical Types of Tissue Response to Bacterial Injury and Clinical Types of Suppurative Inflammation. 6. Ulcer and Gangrene—Wounds which do not Heal according to the Normal Laws of Repair. 7. Miscellaneous Infections. 8. Tuberculosis. 9. Syphilis.
*Part* 3. General Reactions to Injury. 10. The Human Constitution. 11. The Interchange of Body Fluids. 12. Acid-Base Balance. 13. Hemorrhage. 14. Shock.
*Part* 4. Reactions of Tissues and Organs to Trauma of Unknown Origin. 15. Tumors and Cysts.
*Part* 5. Diseases and Injuries of Specific Organs and Systems. 16. The Integumentary System and Adipose Tissue—Skin, Nails, Hair; Sebaceous Glands, Sweat Glands, Mammary Glands. 17. Circulatory System. 18. The Nervous System. 19. The Respiratory System. 20. The Alimentary System. 21. The Skeletal System. 22. Glands. 23. Reproductive and Urinary Systems.

This most up-to-date book on surgery is certainly an advance on the older textbooks. Where many surgical authors are hesitant about entering the realms of physiology, Professor Berman has all the relevant physiology and anatomy which applies at the beginning of each chapter. These portions are equally valuable to the undergraduate who is trying to link surgery to his pre-clinical studies, and to the postgraduate who wishes to understand as well as merely to know. There are also full references at the end of each section.

In the chapters on principles and inflammation, everything is sound and practical with clear information on the antibiotics. The sections on body fluids and on burns are a little complicated mathematically; the section on shock is excellent. The portion on haemorrhage deals fully with anticoagulant therapy.

The circulatory and nervous systems are covered and the respiratory system is especially well done with outstanding descriptions of the applied anatomy and physiology of the lung as a functional unit. In the alimentary system the congenital anomalies are comprehensively set out and the detail about gastric surgery more than adequate for the student. Bone tumours are dealt with briefly and glands are done in detail.

This book is recommended as an excellent example of a thoroughly modern textbook on surgery.

### CERVICAL CANCER

*Radiation Therapy in the Management of Cancer of the Uterine Cervix*. By Simeon T. Cantril, M.D. (Pp. 196 + x. With 25 figures. 36s.) Illinois, U.S.A.: Charles C. Thomas. Oxford, England: Blackwell Scientific Publications, Limited.

*Contents*: 1. Introduction. 2. Clinical Considerations. 3. The Pathology and Spread of Cancer of the Cervix. 4. The Complications of Cervical Cancer. 5. Staging of Cancer of the Cervix. 6. Biopsy. 7. Radiation Therapy. 8. Cancer of the Cervical Stump. 9. Cancer of the Cervix in Pregnancy. 10. The Position of Surgery in the Management of Carcinoma of the Cervix. Appendices. References. Index.

This book, which has obviously been written by one who knows his subject from all its varied aspects, is not just another manual of radiotherapy with a series of technicalities thrust at the reader. It is a sound, systematic presentation of all the problems associated with the management of a disease with a startlingly high incidence—carcinoma of the cervix accounts for 1 in 4 of all malignant tumours in women.

The author deals thoroughly with the various presenting symptoms of the disease, both early and late, and uses an anatomical approach in doing so which renders this chapter simple and logical and, above all, pleasant to read.

In a chapter dealing with the pathology of carcinoma of the cervix the same thoroughness is manifested. He points out the importance of differentiating between an adenocarcinoma arising in the endocervix and one which has originated in the endometrium and subsequently invaded the cervical canal. The latter, he states, is unsuitable for surgery as it will probably have invaded the vaginal tissue as well as the parametria. In the same chapter the lymphatic spread of the disease is also dealt with in a brief but efficient and lucid manner. In a discussion on the staging of the condition, the writer admits that the League of Nations classification has been very useful but he points out the pitfalls that exist in expecting this to be anything but a guide to the more uniform evaluation of results.

There is a delightful little chapter on the history of radiotherapy in this field. It is interesting to note that radiation energy was used in the treatment of malignant disease of the uterus a mere two years after Becquerel inadvertently burnt himself with radium.

Then follows a lucid account of the generally accepted methods of radiotherapy for carcinoma of the cervix. The writer wisely stresses the importance of regarding external radiation with X-rays and intra-cavitary radiation with radium as two phases of the same treatment rather than as two different approaches. Which is the more important or which should come first depends on the merits of the individual case. The Paris and Stockholm techniques are presented clearly with excellent diagrams illustrating the methods of application. Space does not permit one to talk of the useful information with which this section abounds.

The complications of radiotherapy (there are many) are dealt with systematically, both the immediate and the late ones.

There is a section of statistics culled from the published results of all the great therapy institutions of the world with various tables analysing these results in great detail.

One cannot, in this review, dwell on any of the many other attractive features of this book. Suffice it to say that everyone called upon to deal with the problem of carcinoma of the cervix, be it gynaecologist or radiotherapist, should find this book a boon.

### JUNIOR FIRST AID

*The British Red Cross Society Junior First Aid Manual*. (Pp. 66, fully illustrated. 1st ed., 2s. 6d.) Cape Town: African Book Centre, P.O. Box 4484.

*Contents*: 1. What is First Aid? 2. The Triangular Bandage. 3. The Human Body. 4. Systems of the Body. 5. Injuries to Muscles and Joints. 6. The Circulatory System. 7. Bleeding or Haemorrhage. 8. Wounds. 9. Burns and Scalds. 10. The Respiratory System. 11. Fractures. 12. Foreign Bodies in Eyes, Nose, and Ear. 13. Unconsciousness. 14. Transport of Casualties. 15. Preparing for Patient at Home. Definitions. Syllabus of Lectures. Index.

This manual has already been of considerable use to the South African Red Cross Society, which has employed it extensively in the training of the young in First Aid measures. Attractively produced in many colours, the booklet embraces all the most modern principles of visual teaching. Indeed, a special Afrikaans edition has been prepared for the use of the South African Red Cross Society, and will shortly be available.

All those concerned with the teaching of First Aid to the very young cannot afford to be without such an excellent manual of instruction.

## CORRESPONDENCE

### BLOOD GROUPS IN THE BANTU

*To the Editor*: The paper by Dr. Maurice Shapiro on the blood group systems in the Bantu is a valuable addition to the pioneer work of Pirie, Pijper and, later, Elsdon-Dew. He appears, however, to have overlooked my paper (Zoutendyk, 1947) in which for the first time 300 Bantu were Rh typed by the use of anti-C, anti-D and anti-E sera. My main observation was the unique frequency of type cDe (64.3%), a fact now confirmed by his recording an almost identical incidence (64%). The significance of my observation as it affects the incidence of haemolytic disease in the Bantu (Zoutendyk, 1947) was adequately reflected in your Editorial dealing with Dr. Shapiro's additional investigations.

Although his paper raises many interesting and controversial points, there is one statement which cannot be allowed to pass unchallenged: he states that there is an unusually high proportion of Bantu blood samples reacting weakly with anti-A serum, a fact that he claims was demonstrable only because he used immune serum of high titre. This assumption is quite unjustifiable on the evidence presented, as shown by the following figures on 2,000 consecutive ABO groupings on Bantu bloods carried out in my laboratories by means of high titre sera with naturally occurring anti-A and anti-B agglutinins. These sera are the same as those which we issue for general use throughout Southern Africa. It will be seen that there is very close agreement in the results.

| | AB% | A% | B% | O% |
|---|---|---|---|---|
| S.A.B.T.S. | 4.77 | 29.50 | 19.63 | 46.10 |
| S.A.I.M.R. | 4.50 | 31.00 | 20.00 | 44.50 |

The low proportion of A's and AB's recorded by the earlier workers can be explained very simply by the techniques in vogue in those days and, apparently, still practised in some laboratories, namely slide techniques (Pirie and Shapiro) and the testing of cell suspensions in tubes (Pijper and Elsdon-Dew). It cannot be too strongly emphasized that there is only one reliable method of grouping a blood and that is the tube technique employing cross-checking on cells and serum, followed by centrifugation if necessary. Hyperimmune sera are then superfluous. Whether for ABO grouping or for compatibility tests before transfusion, slide techniques have been, or should be, relegated to the serological museums.

If Dr. Shapiro had the impression that there is an unusually high incidence of $A_2$'s among the Bantu, he missed an opportunity by not employing the recognized absorbed B serum technique for differentiation; the problem would thus have been solved easily and readily.

As regards the production of immune grouping sera, instead of employing Witebsky substances, we achieve much the same result for research purposes by preparing saliva from secretors as suggested by Wiener. We find this an efficient and dollar-saving substitute!

REFERENCES

Zoutendyk, A. (1947): S. Afr. J. Med. Sci., **12**, 167.
Zoutendyk, A. (1947): S. Afr. Med. J., **21**, 794.

A. Zoutendyk.

Human Serum and Blood Group Laboratory,
South African Institute for Medical Research,
P.O. Box 1038,
Johannesburg.
22 March 1951.

[*Dr. M. Shapiro, S.A. Blood Transfusion Service, c/o Klein and Esselen Streets, Johannesburg, writes*: I have to thank Dr. Zoutendyk for drawing my attention to his investigation in 1947 of the Rh types in 300 Bantu bloods. As stated in his letter he found 64.3% cDe samples which corresponds closely with the 64.1% recorded by me. However, he showed 27% CDe and did not find a single example of cDE. My findings were 15.3% CDe and 10.25% cDE. The superficial similarity in the proportions of the type cDe recorded independently by us may therefore be misleading since the deviation between our findings in respect of the other types is statistically greater than can be accounted for by chance alone and may indicate a lack of potency or specificity in the anti-E reagent used in his investigation. If this was so, a proportion of the samples typed as cDe and CDe might in fact have belonged to types cDE and CDE respectively. This in turn would have affected his proportion of the type cDe.

With regard to the ABO groups, I did not state, as Dr. Zoutendyk alleges, that the weakly reacting Group A samples were detected by me only because immune serum was employed. Although immune sera were used in my investigation, it is clearly stated on p. 167: 'The fact that such high proportions of A and AB samples were detected by the present author is undoubtedly attributable to the *strength* of the reagents used for the test.' The fact that the 'potent antisera' used by me were immune does not mean that similar results could not be obtained with natural sera of exceptional potency, as Dr. Zoutendyk's own data, reported in his letter for the first time, clearly demonstrate.

With regard to his observations on the slide test, I made it clear in my paper that the specimens of the *First Series* of 4,000 bloods tested by this method were those submitted for routine ante-natal Rh investigation, the ABO grouping being an incidental and entirely inconsequential part of the examination. The *Second Series* of 820 bloods used for comparative control was clearly stated to have been examined by the test tube method with centrifugation. It was also shown that the deviation in the results obtained by the two methods was not statistically significant.

However, lest Dr. Zoutendyk's remarks in connexion with the slide test be construed as indicating that this method is presently being employed in the laboratories of the S.A. Blood Transfusion Service for the purpose of blood transfusion, I should like to state that this is not so. All donors and patients of this Service are routinely tested by the test tube method with centrifugation (a) using immune antisera against the unknown cells and (b) using known $A_1$ and B cells against the unknown serum. The latter portion of the test is notoriously unreliable because of the frequent occurrence of weak or absent natural isoagglutinins, but it serves as a valuable check on the clerical and other errors which may occur.

I cannot agree with Dr. Zoutendyk's contention that the use of immune antisera is superfluous if tests are performed by the test tube technique with natural high-titred antisera. In our experience the routine use of immune sera for blood grouping during the past three years has been at least as great a factor in eliminating haemolytic transfusion reactions as the correct matching of Rh-negative bloods. For the same reason immune antisera are now being employed routinely in most transfusion services in America and the practice is also spreading rapidly in other countries. A number of our own donors initially grouped as O and B by another laboratory utilizing natural high-titred antisera have in fact been found by us to be weakly reacting Group A and AB when re-tested with immune antisera.

To revert to the value of the slide test with immune antisera, Dr. Zoutendyk has, perhaps unwittingly, himself provided the most convincing statistical testimony of the accuracy of this method by comparing my results with those obtained in his own series of 2,000 bloods utilizing the test tube technique throughout. His proportions for the various groups correspond almost perfectly with those obtained in my series, 4,000 out of 4,820 of which were tested by the slide method which he condemns. Incidentally, he has also confirmed my contention of the serological homogeneity of the Bantu as a race.

Depending on the heightened avidity rather than the titre of the immune serum employed, the slide method may in fact on occasions prove more sensitive than the test tube technique. This was well illustrated in a sample of Group $A_2$ recently encountered by us in a Bantu blood donor. His serum contains anti-B but no anti-A; his cells give entirely negative reactions by the test tube technique both with natural high-titred and with immune anti-A sera. With the same immune anti-A serum distinct macroscopic agglutination of his cells is obtained on a slide after continuous rotation at 120 r.p.m. for 10 minutes.

Race and Sanger define $A_1$ and $A_2$ as follows:

'$A_1$. Hardly ever agglutinated by natural human anti-A, weakly agglutinated by immune anti-A; no anti-A in serum. On routine investigation would appear to be group O with agglutinin anti-A missing. The cells absorb anti-A.

$A_2$. Reactions with most anti-A sera corresponding with, or feebler than, those of $A_2B$ blood samples.'

The importance of using immune antisera, particularly in the detection of these sub-groups which are known to occur with considerable frequency in the Negro races, surely requires no greater emphasis.

Dr. Zoutendyk's criticism of the use of Witebsky substances on the grounds of dollar saving can hardly be justified in the light of the nation's present economic position. A single injection of 0.2 c.c. is usually sufficient to elicit a satisfactory response both in titre and avidity. The small expenditure involved (approximately 2d. per injection) is offset by the saving in time in preparing secretor saliva in a form safe and suitable for injection. Also, it is much more acceptable on aesthetic grounds to volunteers submitting themselves to immunization. If the transfusion services were to employ injections of saliva for the production of the very large quantities of these reagents which they utilize, it is not unlikely that they also would find themselves compelled to limit their use for 'research purposes' only.—*Editor.*]

## S.A. Medical Journal
## S.A. Tydskrif vir Geneeskunde

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Author's reprints of papers can be obtained at cost. Order blanks will be forwarded to authors when page proofs are ready.


## Journals Offered Gratis

The doctor who announced in this *Journal* (31 March 1951) that he had certain overseas publications for disposal, without charge, thanks the numerous colleagues who wrote to him and wishes to let the unsuccessful ones know that the Journals have been disposed of.

# The Medical Association of South Africa
# Die Mediese Vereniging van Suid-Afrika

**AGENCY DEPARTMENT : AGENTSKAP AFDELING**

**JOHANNESBURG**

Medical House, 5 Esselen Street. Telephones 44-9134-5
Mediese Huis, Esselenstraat 5. Telefone 44-9134-5

**PRAKTYKE TE KOOP : PRACTICES FOR SALE**

**(Pr S19)** Vrystaat plattelandse praktyk. Totale jaarlikse bruto-ontvangste £2,700. Premie £750.

**(Pr S14)** Transvaal country practice. Income approx. £1,000 p.a. Transferable appointment held. Premium £500.

**(Pr S16)** Transvaal hospital town. Income £2,300. No surgery done. Practice is for sale with large house at £5,000.

**(Pr S22)** Northern Transvaal country practice. D.S. appointment held. Premium £500.

**(Pr S23)** Progressive practice in S. Rhodesian hospital town. Excellent opportunity for young G.P. Present income £3,000-£4,000 p.a. Premium for goodwill £3,000. Terms accepted. £1,000 for book debts, surgery furniture, drugs, etc. Block of professional rooms and living quarters to rent at £30 p.m.

**(Pr S9)** Pretoria practice. Income approx. £3,500 p.a. No appointments held. Premium £1,750.

**ASSISTENTE VERLANG : ASSISTANTS REQUIRED**

**(A O22)** Assistant required for West Rand practice. View to partnership. Applicant must be bilingual Gentile with at least 2 years' experience. Terms during assistantship £2 2s. p.d. plus car allowance and surgery expenses.

**(A O24)** Doctor required by insurance company in South West Africa. Minimum period 6 months. To commence 1 June. Salary £75 per month plus all found rising to £100 in third month.

**MEDICAL EQUIPMENT**

**(I O14)** In new condition, "British Encyclopaedia of Medical Practice", plus annual editions of "Medical Progress". What offers?

* * * *

**CAPE TOWN : KAAPSTAD**

Medical House, P.O. Box 643, Cape Town. Telephone 2-6177
Mediese Huis, Posbus 643, Kaapstad. Telefoon 2-6177

**PRAKTYKE TE KOOP : PRACTICES FOR SALE**

**(674) Vennootskapaandeel in Bolandse praktyk.** £1,224 gemiddelde netto jaarlikse wins aan aandeel verbonde. Twee aanstellings. Huis te koop, maar is nie 'n voorwaarde vir koop van praktyk nie. Premie verlang £650.

**(686)** Noord-Kaapland. Medisyne word aangemaak. D.S. aanstelling ongeveer £1,200 p.j. werd. Geen opposisie. Premie verlang £1,500 en dit sluit praktyk, instrumente en meubels in, betaling £750 kontant, balans paaiemente oor een jaar.

**(636)** Cape Town suburban practice. Non-European. Rental for house £5 p.m. (Quote also **691, 700.**)

**(673)** Near Durban. Average gross receipts £1,650 p.a. Prescribing. Premium required £1,275. One appointment £200 p.a. Good scope for expansion. Double-storied seven-roomed house situated on 1½ acres and separate surgery building for sale at £6,500. Surgery may possibly be rented by arrangement at approx. £8 p.m. Picturesque surroundings. Climate notably cooler than that of the coast. English community.

**(662)** Platteland. Ontvangste vir afgelope 13 maande £1,766 13s. Premie verlang vir klandisiewaarde en meubels £1,000, £600 kontant, balans paaiemente. Huishuur £6 10s. p.m.

**(644)** Durban Central. Mainly Indian and Native cash practice. Average annual gross income £1,235. Premium of £500 required for goodwill, inclusive of furniture and fittings and drugs. Terms may be arranged.

**(365)** North-west Cape. Two appointments held. Gross income 1949 £1,648. Premium £550. House and surgery at low rentals. Small nursing home. Afrikaans community.

**PLAASVERVANGING/ASSISTENTSKAP VERLANG LOCUM TENENCY/ASSISTANTSHIP REQUIRED**

**(696)** Bilingual practitioner with more than 20 years' G.P. experience requires locum tenency, long or short. Own car. Salary subject to mutual arrangement. **(536)**

# Transvaal Provinsiale Administrasie

**VAKATURES BY PRETORIA HOSPITAAL**

Aansoeke word ingewag van kandidate met geskikte kwalifikasies vir die onderstaande pos by Pretoriase Hospitaal.

Aansoeke moet gerig word aan die Superintendent van die betrokke hospitaal en moet volle besonderhede bevat aangaande die ouderdom, professionele, akademiese en taal-kwalifikasies, ondervinding en huwelikstaat van die applikant en moet voorts 'n aanduiding bevat van die vroegste datum waarop diens aanvaar kaa word.

| | | |
|---|---|---|
| Assistent Superintendent (1) | £620—900 x 40—1,020 | Geregistreerde en opgeleide Mediese praktisyn. Getroud plus (*a*) en (*c*) hieronder. Ongetroud plus (*b*) hieronder. |

(*a*) £208 per jaar lewenskostetoelae.
(*b*) £50 per jaar lewenskostetoelae.
(*c*) Tydelike toelae.

Van die persoon wat aangestel word, sal verwag word om bevredigende sertifikate in te dien, asook om hom te onderwerp aan 'n geneeskundige ondersoek by die betrokke hospitaal.

Aansoekvorms is verkrygbaar van die Provinsiale Sekretaris, Departement van Hospitaaldienste, Posbus 383, Pretoria.

Benewens jaarlikse salaris ontvang voltydse werknemers op die oomblik lewenskostetoelae, spoorweg konsessie en word verlof toegestaan ooreenkomstig die hospitaal verlofregulasies.

Die sluitingsdatum van aansoeke vir die poste is 8 Mei 1951.

(28449)

# Department of Health

**VACANCIES FOR VISITING MEDICAL OFFICERS (PART-TIME), KING GEORGE V HOSPITAL FOR TUBERCULOSIS, DURBAN**

Attention is invited to an advertisement appearing in the *Government Gazette* of 20 April 1951 inviting applications for the undermentioned vacancies in the Department of Health:—

| *Post* | *Honorarium attaching to post* |
|---|---|
| (*a*) Anaesthetist | £600 per annum |
| (*b*) Thoracic Surgeon | £600 per annum |
| (*c*) Ear, Nose and Throat Specialist | £262 10 0 per annum |
| (*d*) Radiologist | £52 10 0 per annum |
| (*e*) Ophthalmologist | £52 10 0 per annum |
| (*f*) Orthopaedic Surgeon | £52 10 0 per annum |
| (*g*) Urologist | £52 10 0 per annum |

(28390)

# Departement van Gesondheid

**VAKATURES VIR BESOEKENDE MEDIESE BEAMPTES (DEELTYDS): KONING GEORGE V HOSPITAAL VIR TERINGLYERS, DURBAN**

Die aandag word gevestig op 'n advertensie wat in die *Staatskoerant* van 20 April 1951 verskyn waarin aansoeke gevra word om ondergenoemde vakatures in die Departement van Gesondheid:—

| *Pos* | *Honorarium aan pos verbonde* |
|---|---|
| (*a*) Narkotiseur | £600 per jaar |
| (*b*) Bors-chirurg | £600 per jaar |
| (*c*) Oor-, neus- en keel-spesialis | £262 10 0 per jaar |
| (*d*) Radioloog | £52 10 0 per jaar |
| (*e*) Oogarts | £52 10 0 per jaar |
| (*f*) Ortopedis | £52 10 0 per jaar |
| (*g*) Uroloog | £52 10 0 per jaar |

(28390)

## Required: B.M.R. Apparatus

Second-hand Basal Metabolic Rate machine in good condition required by a Medical Institution in Johannesburg. Write to "A. G. F.", P.O. Box 643, Cape Town.

# Johannesburg Hospital and University of the Witwatersrand

## JOINT APPOINTMENTS

*Radiologists*

Applications are invited for the following vacancies in the Radiological Departments of the Johannesburg Hospital and its branches and the Sub-department of Radiology of the University of the Witwatersrand.

*Full-Time*

| | |
|---|---|
| Radiologist (Senior) | 1 Vacancy |
| Radiologist | 2 Vacancies |
| Radiologists (Assistant) | 4 Vacancies |
| Radiotherapist (Senior) | 1 Vacancy |
| Radiotherapist | 1 Vacancy |

The scales of pay are as follows:

(a) Radiologist and Radiotherapist (Senior) £2,000 per annum;

(b) Radiologist and Radiotherapist £1,800 per annum;

(c) Radiologist and Radiotherapist (Assistant) £1,200 × 50—£1,500 per annum.

In addition to above there is a cost-of-living allowance of £208 per annum for married personnel and £50 per annum for single personnel.

All appointments are on probation for six months.

*Leave Privileges*

Six weeks' compulsory leave, to be taken in two periods during the service year, and two weeks' accumulative leave per annum are granted.

Persons appointed to the permanent staff will be required to join the Transvaal Officials Pension Fund, providing they are 40 years of age or under at the time of their appointment.

Successful applicants must be prepared to serve at any of the Johannesburg Group of Hospitals.

Applications must be submitted to the Medical Superintendent, Johannesburg Hospital, and must reach him on or before 15 June 1951.

Application forms are obtainable from the Provincial Secretary, Hospital Services Department, P.O. Box 383, Pretoria.

(28451)

# Natal Provincial Administration

## VACANCY: JUNIOR VISITING ANAESTHETIST: ADDINGTON HOSPITAL

Applications are invited for appointment to the above-mentioned post at Addington Hospital.

An honorarium at the rate of £100 per annum is attached to the post.

Applications, giving full details of experience and qualifications should be addressed to the Medical Superintendent, Addington Hospital, P.O. Box 977, Durban, to reach him by 18 May 1951.

(A.D.6214)

# Wanted

Energetic and experienced general practitioner capable of doing general surgery in partnership practice in large country hospital town with all facilities. One partner proceeding overseas for further study. Either long-term locum, or purchase of share of practice to be arranged. Good opportunity for Jewish doctor. Write stating particulars of experience, marital status, and when able to commence to 'A. G. C.', P.O. Box 643, Cape Town.

# Anaesthetic Practice: Assistant

Assistant (with a view to a share in the partnership) required in an old-established anaesthetic practice in a coastal town. Write to 'A. G. E.', P.O. Box 643, Cape Town.

# City of Durban

## VACANCY FOR EUROPEAN FEMALE CLINICAL MEDICAL OFFICER: CITY HEALTH DEPARTMENT

Applications are invited for the above-mentioned vacant position in the City Health Department.

The grade for the position is G.7 (£800 × 50—£1,000) subject to the City Council's Scheme of Deflation of Salaries and Wages and the appointment will be in terms of the City Council's General Conditions of Service and Leave Regulations. In addition, a cost-of-living allowance is being paid at the present time, which, at existing rates, will give a total monthly remuneration as indicated:—

| *Salary per annum* | *Total Monthly Remuneration (including C.-O.-L. Allowance)* |
|---|---|
| £800 | £77 7 4 |
| £1,000 | £93 6 6 |

The duties appertaining to the position will generally relate to the various branches of maternal and child hygiene and the development of a family health programme for all races.

Possession of a Diploma in Public Health will be an added recommendation for appointment, whilst preference will also be extended to candidates less than forty-five years of age.

The successful applicant will be required to become a contributing member of the City Council's Superannuation Fund.

Applications from registered female medical practitioners, stating age, marital state, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should reach the City Medical Officer of Health, Gale Street, Durban, not later than 12 noon on Saturday, 26 May 1951.

Personal canvassing for appointment is prohibited and proof thereof will disqualify a candidate *vide* Council's Standing Order No. 1.

W. L. Howes
*Deputy Town Clerk*

Town Clerk's Office
Durban
14 April 1951
(4692)

# City of Kimberley

## LOCATIONS MEDICAL OFFICER

Applications are hereby invited from qualified registered medical practitioners for the post of Medical Officer (Clinical) in the Council's Native Locations on the grade £600—50—£800 per annum plus temporary cost-of-living allowance. Transport will be provided by the City Council.

The successful applicant will be in charge of the Locations Medical and Nursing Service, under the jurisdiction of the Medical Officer of Health and will carry out such duties as the Medical Officer of Health may determine.

Applications, stating age, qualifications, experience and the earliest date duty can be assumed and accompanied by copies of not more than three recent testimonials, must reach the undersigned not later than Monday, 14 May 1951.

R. Hartley Marriott
*Town Clerk*

Town Office, Kimberley
16 April 1951
(65/1951)

# Medical Officer

Applications are invited from medical practitioners in Brakpan for the position of Panel Doctor to the Alpha-Harris Benefit Society.

Conditions of appointment will be in accordance with the requirements of the Medical Association of South Africa.

Reply to the Secretary, Alpha-Harris Benefit Society, P.O. Box 24, Knights.

# For Sale

Attractive single-storey house, on plot area approximately 17,000 square feet. Recommended for medical practitioner. Near station and bus stop, Main Road, Plumstead. Flat rights, etc. Apply 'Rosario', Main Road Plumstead. Inspection invited.

Printed by Cape Times Ltd., Parow, and Published by the Proprietors, THE MEDICAL ASSOCIATION OF SOUTH AFRICA, MEDICAL HOUSE, 35 Wale Street, Cape Town. P.O. Box 643. Telephone 2-6177. Telegrams: 'Medical'